IEC TR 62368-2

Edition 2.0 2015-02

TECHNICAL REPORT

colour inside

Audio/video, information and communication technology equipment – Part 2: Explanatory information related to IEC 62368-1

IEC TR 62368-2:2015-02(en)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

IEC TR 62368-2

Edition 2.0 2015-02

TECHNICAL REPORT

Audio/video, information and communication technology equipment – Part 2: Explanatory information related to IEC 62368-1

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 35.020; 33.160.01

ISBN 978-2-8322-2268-3

Warning! Make sure that you obtained this publication from an authorized distributor.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT –

Part 2: Explanatory information related to IEC 62368-1:2014

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 62368-2, which is a technical report, has been prepared by subcommittee TC 108: Safety of electronic equipment within the field of audio/video, information technology and communication technology.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

This second edition updates the first edition of IEC 62368-2 published in 2011 to take into account changes made to IEC 62368-1:2010 as identified in the Foreword of IEC 62368-1:2014.

This Technical Report is informative only. In case of a conflict between IEC 62368-1 and IEC TR 62368-2, the requirements in IEC 62368-1 prevail over this Technical Report.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
108/540/DTR	108/553/RVC

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

In this standard, the following print types are used:

– notes/explanatory matter: in smaller roman type;
– tables and figures that are included in the rationale have linked fields (shaded in grey if "field shading" is active).

In this standard, "HBSDT" stands for Hazard Based Standard Development Team, which is the Working Group of TC 108 responsible for the development and maintenance of IEC 62368-1.

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

A list of all parts of the IEC 62368 series can be found, under the general title *Audio/video, information and communication technology equipment*, on the IEC website.

In this document, only those subclauses considered to need further background reference information or explanation of their content to benefit the reader are included. Therefore, not all numbered subclauses are cited. Unless otherwise noted, all references are to clauses, subclauses, annexes, figures or tables are located in IEC 62368-1:2014.

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

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT –

Part 2: Explanatory information related to IEC 62368-1:2014

Clause 0 Principles of this product safety standard

Clause 0 is informational and provides a rationale for the normative clauses of the standard.

0.5.1 General

ISO IEC Guide 51:2014, 6.3.5 states:

"When reducing risks the order of priority shall be as follows:

a) inherently safe design;

b) guards and protective devices;

c) information for end users.

Inherently safe design measures are the first and most important step in the risk reduction process. This is because protective measures inherent to the characteristics of the product or system are likely to remain effective, whereas experience has shown that even well-designed guards and protective devices can fail or be violated and information for use might not be followed.

Guards and protective devices shall be used whenever an inherently safe design measure does not reasonably make it possible either to remove hazards or to sufficiently reduce risks. Complementary protective measures involving additional equipment (for example, emergency stop equipment) might have to be implemented.

The end user has a role to play in the risk reduction procedure by complying with the information provided by the designer/supplier. However, information for use shall not be a substitute for the correct application of inherently safe design measures, guards or complementary protective measures."

In general, this principle is used in IEC 62368-1. The table below shows a comparison between the hierarchy required in ISO IEC Guide 51 and the hierarchy used in IEC 62368-1:2014:

ISO IEC Guide 51	IEC 62368-1
a) inherently safe design	1. inherently safe design by limiting all energy hazards to class 1
b) guards and protective devices	2. equipment safeguards
	3. installation safeguards
c) information for end users	4. behavioral safeguards
	5. instructional safeguards

0.5.7 Equipment safeguards during skilled person service conditions

Purpose: To explain the intent of requirements for providing safeguards against involuntary reaction.

Rationale: By definition, a skilled person has the education and experience to identify all class 3 energy sources to which he may be exposed. However, while servicing one class 3 energy source in one location, a skilled person may be exposed to another class 3 energy source in a different location.

In such a situation, either of two events is possible. First, something may cause an involuntary reaction of the skilled person with the consequences of contact with the class 3 energy source in the different location. Second, the space in which the skilled person is located may be small and cramped, and inadvertent contact with a class 3 energy source in the different location may be likely.

In such situations, this standard may require an equipment safeguard solely for the protection of a skilled person while performing servicing activity.

_____

Clause 1 Scope

Purpose: To identify the purpose and applicability of this standard and the exclusions from the scope.

Rationale: The scope excludes requirements for functional safety. Functional safety is addressed in IEC 61508-1. Because the scope includes computers that may control safety systems, functional safety requirements would necessarily include requirements for computer processes and software.

_____

Clause 2 Normative references

The list of normative references is a list of all documents that have a normative reference to it in the body of the standard. As such, referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Recently, there were some issues with test houses that wanted to use the latest edition as soon as it was published. As this creates serious problems for manufacturers, since they have no chance to prepare, it was felt that a reasonable transition period should be taken into account. This is in line with earlier decisions taken by the SMB that allow transition periods to be mentioned in the foreword of the standards. Therefore TC 108 decided to indicate this in the introduction of the normative references clause, to instruct test houses to take into account any transition period, effective date or date of withdrawal established for the document.

These documents are referenced, in whole, in part or as alternative requirements to the requirements contained in this standard. Their use is specified, where necessary, for the application of the requirements of this standard.

_____

Clause 3 Terms, definitions and abbreviations

Rationale is provided for definitions that deviate from IEC 60050 definitions or from pilot standard definitions.

3.3.2.1 electrical enclosure

Source: IEC 60050-195:1998, 195-06-13

Purpose: To support the concept of safeguards as used in this standard.

Rationale: The definition is modified to use the term “safeguard” in place of the word “protection”. The word “safeguard” identifies a physical “thing” whereas the word “protection” identifies the act of protecting. This standard sets forth requirements for use of physical safeguards and requirements for those safeguards. The safeguards provide “protection” against injury from the equipment.

3.3.5.1 basic insulation

Source: IEC 60050-195:1998,195-06-06

Purpose: To support the concept of safeguards as used in this standard.

Rationale: The definition is modified to use the term “safeguard” in place of the word “protection”. The word “safeguard” identifies a physical “thing” whereas the word “protection” identifies the act of protecting. This standard sets forth requirements for use of physical safeguards and requirements for those safeguards. The safeguards provide “protection” against injury from the equipment.

3.3.5.2 double insulation

Source: IEC 60050-195:1998,195-06-08

Purpose: To support the concept of safeguards as used in this standard.

Rationale: See 3.3.5.1, basic insulation.

3.3.5.5 solid insulation

Source: IEC 60664-1:2007, 3.4

Purpose: To support the concept that safeguards are interposed between an energy source and a body part.

Rationale: IEC 60664-1 defines insulation as material interposed between two conductive parts. The IEC 60664-1 definition is modified by adding that insulation is also “between a conductive part and a body part.” For safety purposes, solid insulation is not only used between conductors, but is also used between a conductor and a body part. For example, a Class II equipment employs solid insulation in this manner.

3.3.5.6 supplementary insulation

Source: IEC 60050-195:1998, 195-06-07

Purpose: To support the concept of safeguards as used in this standard.

Rationale: See 3.3.5.1, basic insulation.

3.3.6.7 restricted access area

Source: IEC 60050-195:1998, 195-04-04

Purpose: To use the concept of “instructed persons” and “skilled persons” as used in this standard.

Rationale: The definition is modified to use the terms “instructed persons” and “skilled persons” rather than “electrically instructed persons” and “electrically skilled persons.”

3.3.7.8 reasonably foreseeable misuse

Source: ISO IEC Guide 51:2014, definition 3.14

Rationale: Misuse depends on personal objectives, personal perception of the equipment, and the possible use of the equipment (in a manner not intended by the manufacturer) to accomplish those personal objectives. Equipment within the scope of this standard ranges from small handheld equipment to large, permanently installed equipment. There is no commonality among the equipment for readily predicting human behaviour leading to misuse of the equipment and resultant injury. Where a possible reasonably foreseeable misuse that may lead to an injury is not covered by the requirements of the standard, manufacturers are encouraged to consider reasonably foreseeable misuse of equipment and provide safeguards, as applicable, to prevent injury in the event of such misuse. (Not all reasonably foreseeable misuse of equipment results in injury or potential for injury.)

3.3.8.1 instructed person

Source: IEC 60050-826:2004, 826-18-02

Rationale: The definition is modified to use the terms “energy sources”, “skilled person”, and “precautionary safeguard”. The definition is made stronger by using the term “instructed” rather than “advised”.

3.3.8.3 skilled person

Source: IEC 60050-826:2004, 826-18-01

Rationale: The definition is modified to use the phrase “to reduce the likelihood of”. IEC 62368-1 does not use the word “hazard”.

3.3.14.4 prospective touch voltage

Source: IEC 60050-195:1998, 195-05-09

Purpose: To properly identify electric shock energy source voltages.

Rationale: The definition is modified to delete “animal”. The word “person” is also deleted as all of the requirements in the standard are with respect to persons.

3.3.14.9 working voltage

Source: IEC 60664-1:2007, definition 3.5

Purpose: To distinguish between r.m.s. working voltage and peak working voltage.

Rationale: The IEC 60664-1 definition is modified to delete “r.m.s”. IEC 62368-1 uses both r.m.s. working voltage and peak working voltage; each term is defined.

3.3.15.2 class II construction

Source: IEC 60335-1:2010, 3.3.11

Purpose: Although the term is not used in the standard, for completeness, it was decided to retain this definition.

Rationale: The word “appliance” is changed to “equipment”.

_____

Clause 4 General requirements

Purpose: To explain how to investigate and determine whether or not safety is involved.

Rationale: In order to establish whether or not safety is involved, the circuits and construction are investigated to determine whether the consequences of possible fault conditions would lead to an injury. Safety is involved if, as a result of a single fault condition, the consequences of the fault lead to a risk of injury.

If a fault condition should lead to a risk of injury, the part, material, or device whose fault was simulated may comprise a safeguard.

Rationale is provided for questions regarding the omission of some traditional requirements appearing in other safety standards. Rationale is also provided for further explanation of new concepts and requirements in this standard.

Reasonable foreseeable misuse

Rationale: Apart from Annex M, this standard does not specifically mention foreseeable misuse. Nevertheless, the requirements of the standard cover many kinds of foreseeable misuse, such as covering of ventilation openings, paper jams, stalled motors etc.

functional insulation

Rationale: This standard does not include requirements for functional insulation. By its nature, functional insulation does not provide a safeguard function against electric shock or electrically-caused fire and therefore may be faulted. Obviously, not all functional insulations are faulted as this would be prohibitively time-consuming. Sites for functional insulation faults should be based upon physical examination of the equipment, and upon the electrical schematic.

Note that basic and reinforced insulation may also serve as functional insulation, in which case the insulation is not faulted.

functional components

Rationale: This standard does not include requirements for functional components. By their nature, individual functional components do not provide a safeguard function against electric shock, electrically-caused fire, thermal injury, etc., and therefore may be candidates for fault testing. Obviously, not all functional components are faulted as this would be prohibitively time-consuming. Candidate components for fault testing should be based upon physical examination of the equipment, upon the electrical schematic diagrams, and whether a fault of that component might result in conditions for electric shock, conditions for ignition and propagation of fire, conditions for thermal injury, etc.

As with all single fault condition testing (Clause B.4), upon faulting of a functional component, there shall not be any safety consequence (for example, a benign consequence), or a basic, supplementary, or reinforced safeguard shall remain effective.

In some cases, a pair of functional components may comprise a safeguard. If the fault of one of the components in the pair is mitigated by the second component, then the pair is designated as a double safeguard. For example, if two diodes are employed in series to protect a battery from reverse charge, then the pair comprises a double safeguard and the components should be limited to the manufacturer and part number actually tested. A second example is that of an X-capacitor and discharge resistor. If the discharge resistor should fail open, then the X-capacitor will not be discharged. Therefore, the X-capacitor value is not to exceed the ES2 limits specified for a charged capacitor. Again, the two components comprise a double safeguard and the values of each component are limited to values for ES1 under normal operating conditions and the values for ES2 under single fault conditions.

4.1.1 Application of requirements and acceptance of materials, components and subassemblies

Purpose: To accept components as safeguards.

Rationale: This standard includes requirements for safeguard components. A safeguard component is a component specifically designed and manufactured for both functional and safeguard parameters. Examples of safeguard components are capacitors complying with IEC 60384-14 and other IEC component standards.

Acceptance of components and component requirements from IEC 60065 and IEC 60950-1

Purpose: To accept both components and sub-assemblies investigated to the legacy standards, IEC 60065 and IEC 60950-1, and components complying with individual component requirements within these standards during the transition period.

Rationale: To facilitate a smooth transition from the legacy standards IEC 60065 and IEC 60950-1 to IEC 62368-1, including by the component supply chain, this standard allows for acceptance of both components and sub-assemblies investigated to the legacy standards. Individual component requirements within these standards may be used for compliance with IEC 62368-1 without further investigation, other than to give consideration to the appropriate use of the component or sub-assembly in the end-product.

This means, for example, if a switch mode power supply is certified to IEC 60065 or IEC 60950-1, this component can be used in equipment evaluated to IEC 62368-1 without further investigation, other than to give consideration to the appropriate use of the component, such as use within its electrical ratings.

This also means, for example, since IEC 60950-1 allows for wiring and cables insulated with PVC, TFE, PTFE, FEP, polychloroprene or polyimide to comply with material requirements for parts within a fire enclosure without need for the application of a flammability test, the same wire can be used to comply with the requirements in 6.5.2 for insulation on wiring used in PS2 or PS3 circuits and without the need for application of a flammability test per IEC 60332 series or IEC TS 60695-11-21 as normally is required by 6.5.1.

It is important to note that this will only be allowed during the transition period from the legacy standards to IEC 62368-1.

4.2.1 Class 1 energy source

A class 1 energy source is a source that is expected not to create any pain or injury. Therefore, a class 1 energy source may be accessible by any person.

Under some specific conditions of abnormal operation or single fault, a class 1 energy source may reach class 2 limits. **However, this source still remains a class 1 energy source**. In this case, an instructional safeguard may be required.

4.2.2 Class 2 energy source

A class 2 energy source is a source that may create pain, but which is unlikely to create any serious injury. Therefore, a class 2 energy source may not be accessible by an ordinary person. However, a class 2 energy source may be accessible by:

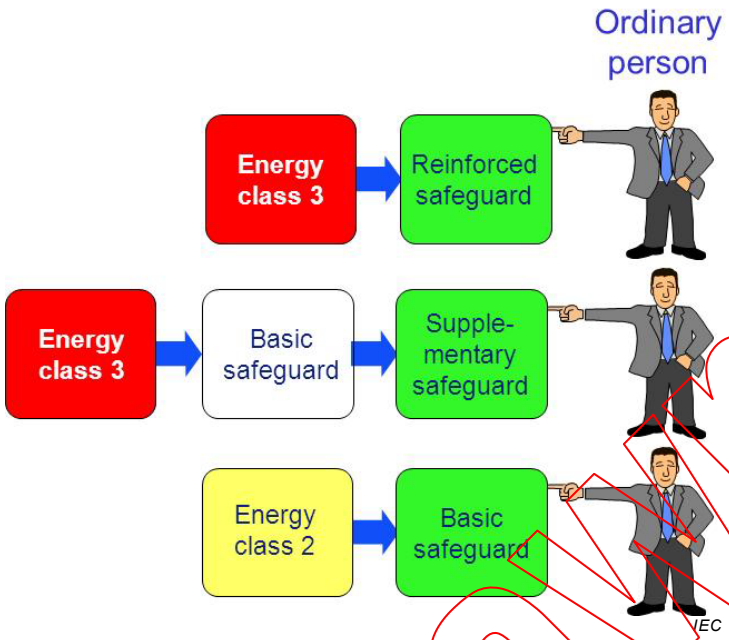
- an instructed person; and
- a skilled person.

4.2.3 Class 3 energy source

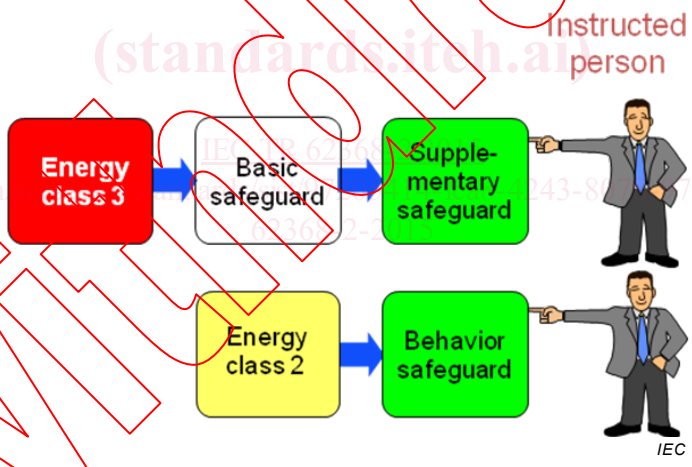
A class 3 energy source is a source that is likely to create an injury. Therefore a class 3 energy source may not be accessible to an ordinary person or an instructed person. A class 3 energy source may, in general, be accessible to a skilled person.

Any source may be declared a class 3 energy source without measurement, in which case all of the safeguards applicable to class 3 are required.

4.3.2 Safeguards for protection of an ordinary person



4.3.3 Safeguards for protection of an instructed person



4.3.4 Safeguards for protection of a skilled person

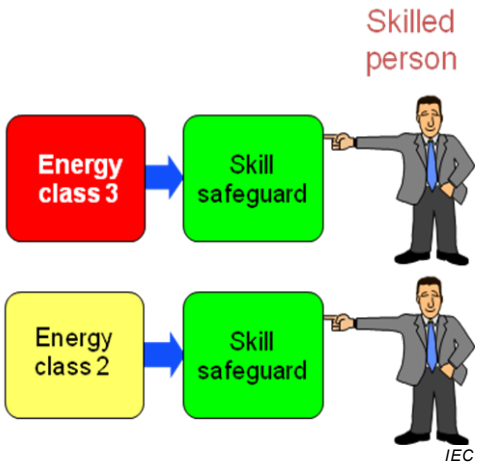


Table 1 – General summary of required safeguards

Person	Number of safeguards required to be interposed between an energy source and a person		
	Class 1	Class 2	Class3
Ordinary person	0	1	2
Instructed person	0	0	2
Skilled person	0	0	0 or 1

Table 1 gives a general overview of the required number of safeguards depending on the energy source and the person to whom the energy source is accessible. The different clauses have requirements that sometimes deviate from the general principle as given above. These cases are clearly defined in the requirements sections of the standard.

For a skilled person, there is normally no safeguard required for a class 3 energy source. However, if there are multiple class 3 energy sources accessible or if the energy source is not obvious, a safeguard may be required.

4.4.2 Composition of a safeguard

Purpose: To specify design and construction criteria for a single safeguard (basic, supplementary, or reinforced) comprised of more than one element, for example, a component or a device.

Rationale: Safeguards need not be a single, homogeneous component. Indeed, some parts of this standard require a single safeguard be comprised of two or more elements. For example, for thin insulation, two or more layers are required to qualify as supplementary insulation. Another example is protective bonding and protective earthing, both of which are comprised of wires, terminals, screws, etc.

If a safeguard is comprised of two or more elements, then the function of the safeguard should not be compromised by a failure of any one element. For example, if a screw attaching a protective earthing wire should loosen, then the current-carrying capacity of the protective earthing circuit may be compromised, making its reliability uncertain.

4.4.4 Safeguard robustness

Rationale: Safeguards should be sufficiently robust to withstand the rigors of expected use throughout the equipment lifetime. Robustness requirements are specified in the various clauses.

4.4.4.6 Glass impact tests

Source: IEC 60065

Purpose: Verify that any glass that breaks does not cause skin-lacerating injury, or expose class 3 hazards behind the glass.

Rationale: When it comes to glass, two hazards can be present in case the glass breaks:

– Accessibility to sharp edges from the broken glass itself

– Exposure of class 3 energy hazards in case the glass is used as (part of) the enclosure

Should the glass break during the impact test, T.9 is applied to ensure the expelled fragments will be at MS2 level or less.

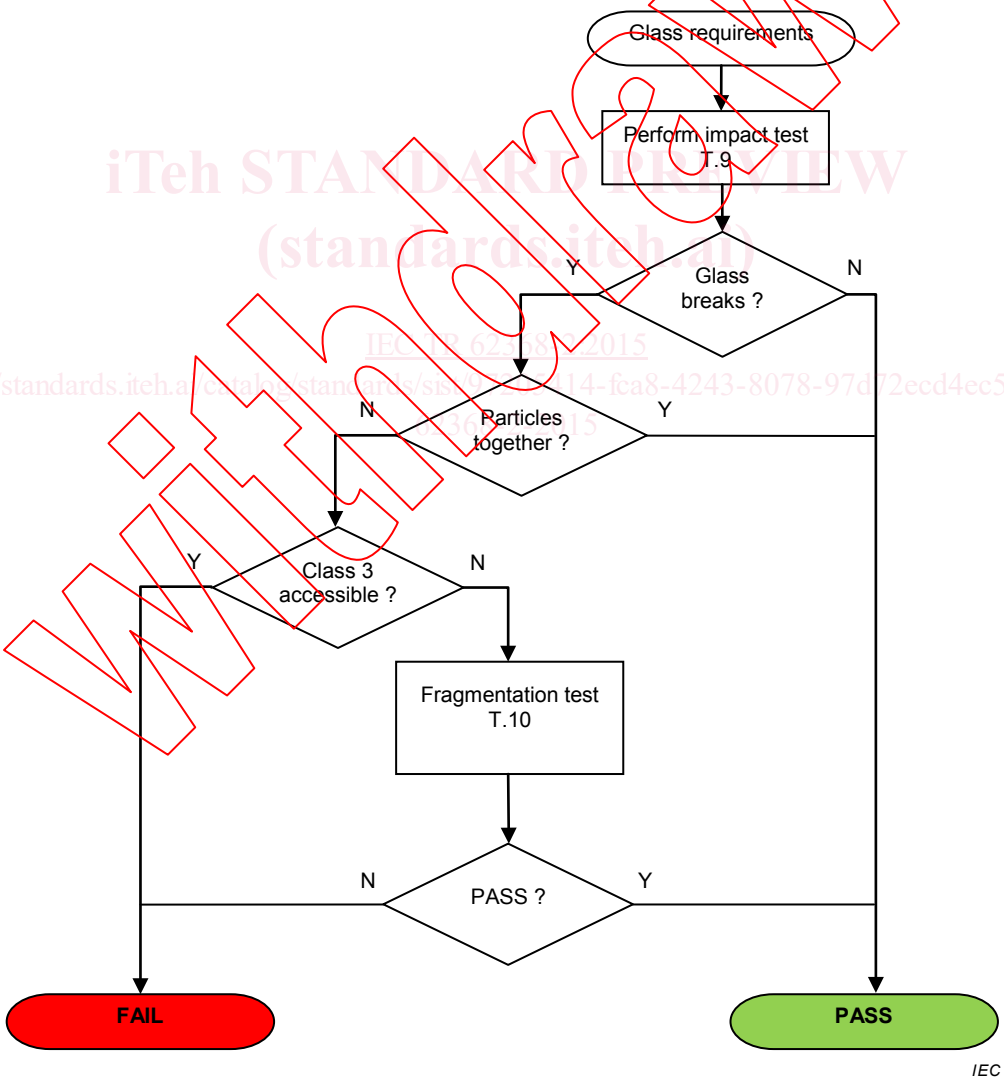
Platen glass has a long history of being exempted, because it is quite obvious for people that, if broken, the broken glass is hazardous and contact should be avoided. There is no known history of serious injuries with this application. Platen glass is the glass that is typically used in scanners, copiers, etc. Accidents are rare, probably also because they are protected by an additional cover most of the time, which limits the probability that an impact will occur on the glass.

CRT's are exempted because they have separate requirements.

The test value for floor standing equipment is higher because it is more likely to be impacted by persons or carts and dollies at a higher force while in normal use.

The exemption for glass below certain sizes is taken over from IEC 60065. There is no good rationale to keep the exemption, other than that there are no serious accidents known from the field. The HBSDT decided that they want to keep the exemption in.

The following flow chart shows the intent for the requirements:



4.4.4.9 Compliance criteria

The value of 30 g for the weight limit is chosen based on the maximum dimension of 50 mm. A typical piece of glass with a size of 50 mm × 50 mm × 4 mm (roughly 2,80 g/cm^3) would have a weight of around 30 g.

4.6 Fixing of conductors

Source: IEC 60950-1

Purpose: To reduce the likelihood that conductors could be displaced such that they reduce the creepage distances and clearances.

Rationale: These requirements have been successfully used for products in the scope of this standard for many years.

4.7 Equipment for direct insertion into mains socket-outlets

Source: IEC 60065:2014, 15.5

IEC 60950-1:2005/AMD 1:2009/AMD 2:2013, 4.3.6

IEC 60335-1:2010, 22.3

IEC 60884-1:2002/AMD 1:2006/AMD 2:2013, 14.23.2

Purpose: Determine that equipment incorporating integral pins for insertion into mains socket-outlets does not impose undue torque on the socket-outlet due to the mass and configuration of the equipment. This type of equipment often is known as Direct Plug-in Equipment or Direct Plug-in Transformers.

Rationale: Socket outlets are required to comply with the safety requirements in IEC 60884-1:2002, including 14.23.2. The requirements result in socket designs with certain design limitations. Equipment incorporating integral pins for insertion into mains socket-outlets is not allowed to exceed these design limitations.

4.9 Likelihood of fire or shock due to entry of conductive objects

Purpose: The purpose of this clause is to establish opening requirements that would minimize the risk of foreign conductive objects falling into the equipment that could bridge parts within class 2 or class 3 circuits, or between PS circuits that could result in ignition or electric shock.

The 1,8 m is a height where it is considered unlikely that a person would accidentally drop something that could consequently fall into the equipment.

_____

Clause 5 Electrically-caused injury

Purpose: Clause 5 classifies electrical energy sources and provides criteria for determining the energy source class of each conductive part. The criteria for energy source class include the source current-voltage characteristics, duration, and capacitance. Each conductive part, whether current-carrying or not, or whether earthed or not, shall be classed ES1, ES2, or ES3 with respect to earth and with respect to any other simultaneously accessible conductive part.

240 VA limit

It should be noted that IEC 62368-1 does not have requirements for a 240 VA Energy Hazard, such as was previously located in 2.1.1.5 of IEC 60950-1: 2005/AMD 1:2009/AMD 2:2013.

The origin/justification of the 240 VA energy hazard requirement in the legacy standards was never precisely determined, and it appears the VA limits may have come from a manufacturer's specifications originally applied to exposed bus bars in mainframe computers back in the 1960's and concerns at the time with service personnel inadvertently bridging them with a metal part.