



DPC: 22 / 30420250 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 30 May 2022

Origin: International

Latest date for receipt of comments: 5 July 2022

Project No. 2020/01247

Responsible committee: EPL/108 Safety of electronic equipment within the field of audio/video, information technology and communication technology

Interested committees:

Title: BS EN 63315 Audio/video, information and communication technology equipment - Safety - DC power transfer between ICT equipment ports using ICT cabling at # 60 Vd.c.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

**WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD.
THIS DRAFT IS NOT CURRENT BEYOND 5 July 2022**

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <http://standardsdevelopment.bsigroup.com>

Responsible Committee Secretary: Ms Charmaine Mukherjee (BSI)

Direct tel:

E-mail: charmaine.mukherjee@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



108/772/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:

IEC 63315 ED1

DATE OF CIRCULATION:

2022-05-13

CLOSING DATE FOR COMMENTS:

2022-08-05

SUPERSEDES DOCUMENTS:

108/729/NP, 108/736/RVN

IEC TC 108 : SAFETY OF ELECTRONIC EQUIPMENT WITHIN THE FIELD OF AUDIO/VIDEO, INFORMATION TECHNOLOGY AND COMMUNICATION TECHNOLOGY

SECRETARIAT:

United States of America

SECRETARY:

Ms Valara Davis

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☒ SAFETY

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT – SAFETY – DC power transfer between ICT equipment ports using ICT cabling at ≤ 60 Vd.c.

NOTE FROM TC/SC OFFICERS:

Copyright © 2022 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

CONTENTS

1		
2	FOREWORD.....	3
3	INTRODUCTION.....	5
4	1 Scope.....	6
5	2 Normative references.....	7
6	3 Terms and definitions and abbreviated terms.....	9
7	4 Abbreviated terms.....	12
8	5 Power transfer.....	12
9	5.1 General requirements.....	12
10	5.2 Electrical-caused injury, electrical sources and safeguards.....	13
11	5.3 Electrical-caused fire, power sources and safeguards.....	13
12	5.3.1 DC power transfer through a remote ICT interface.....	13
13	5.3.2 DC power transfer through a local ICT interface.....	14
14	5.3.3 DC power transfer (interconnection to other equipment).....	14
15	5.4 Additional safeguard during single fault conditions in the PSE.....	14
16	5.4.1 Requirement for the PSE.....	15
17	5.4.2 Requirement for the PD.....	15
18	5.5 Protocol safeguards.....	15
19	5.5.1 General.....	15
20	5.5.2 Safeguard requirements for PSE.....	16
21	5.5.3 Requirements for a detachable cable.....	17
22	5.5.4 Remote update.....	17
23	A Rationale for 5.4.....	18
24	B Examples of communication errors and protocol safeguards.....	19
25	B1 General.....	19
26	B2 Typical relationships between errors and protocol safeguards.....	19
27	B3 Communication errors.....	24
28	B3.1 General.....	24
29	B3.2 Corruption.....	24
30	B3.3 Unintended repetition.....	24
31	B3.4 Incorrect sequence.....	24
32	B3.5 Loss.....	24
33	B3.6 Unacceptable delay.....	24
34	B3.7 Insertion.....	24
35	B3.8 Masquerade.....	25
36	B3.9 Addressing.....	25
37	B4 Protocol safeguards.....	25
38	B4.1 General.....	25
39	B4.2 Sequence number.....	25
40	B4.3 Time stamp.....	25
41	B4.4 Time expectation.....	25
42	B4.5 Connection authentication.....	25
43	B4.6 Feedback message.....	26
44	B4.7 Data integrity assurance.....	26
45	B4.8 Redundancy with cross checking.....	26
46	B4.9 Different data integrity assurance systems.....	26
47	C Communication errors and USB Power Delivery protocol safeguards.....	27

48	C1 General.....	27
49	C2 Rationale	30
50	C2.1 Soft errors.....	30
51	C2.2 USB Power Delivery example walk-through.....	30
52	D Non-static power sources and qualified loads	32
53	D1 Non-static power sources.....	32
54	D2 Qualified loads.....	32
55	Bibliography	33
56	Table 1.....	12
57	Table B.1 – Table B.1 - Overview of the effectiveness of the various measures on the possible errors	20
58	Table C.1 – Table C1- Communication error types and USB PD protocol safeguards	28

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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.

IEC 63115 was prepared by IEC technical committee TC 108, Safety of electronic equipment within the field of audio/video, information technology and communication technology. This standard is intended to replace parts of IEC 62368-3 upon publication.

In the case of a new edition replacing a previous edition, complete the following text. In the case of a first edition, delete it, as it does not apply.

This standard replaces Clause 5 of IEC 62368-3 upon publication.

The text of this International Standard is based on the following documents:

Draft	Report on voting

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

108

109 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with
110 ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/](http://www.iec.ch/members_experts/refdocs)
111 [members_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at
112 www.iec.ch/standardsdev/publications.
113

114 The committee has decided that the contents of this document will remain unchanged until the stability date
115 indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date,
116 the document will be
117

- 118 • reconfirmed,
- 119 • withdrawn,
- 120 • replaced by a revised edition, or
- 121 • amended.

122

INTRODUCTION

123

This standard prescribes safeguards, test methods and compliance requirements intended to reduce the risk of fire associated with voltage and current used by standard sized, common ICT interfaces that are used for power delivery at voltages less than 60 V DC.

124

125

126

127

The standard is intended to be used with IEC 62368-1 but can be used with any electrotechnical product standard to ensure the safety of these commonly used interfaces in consumer products.

128

1 Scope

The Scope clause is a mandatory element of the text. For rules on the drafting of the Scope, refer to the ISO/IEC Directives, Part 2:2018, Clause 14.

This standard applies to any equipment intended to supply and/or receive charging and/or operating power from Information and Communication Technology (ICT) ports using ICT wiring and cables. It covers particular requirements for circuits that are designed to transfer DC power through an ICT port from a **power sourcing equipment (PSE)** to a **powered device (PD)**.

The power transfer from equipment that uses rated interfaces of ≤ 60 V DC.

Examples of equipment ports that are considered to be within the scope of this document:

- PoE
- USB
- HDMI
- Audio/Visual
- Cable/Satellite TV
- ICT adapters, converters, jack panels,
- etc.

NOTE 1 Any wiring or cable that permits DC power transfer between ICT equipment is considered a communication cable or ICT cable even if communication does not take place on the conductors. For example, a USB cable can be used just to recharge a portable device battery.

This standard does not cover:

- power sources with output connectors not associated with a communication protocol;
- power interfaces that may include proprietary communication channels that do not use common connectors;
- PSE delivering power to multiple PDs through a single port or cable; and
- dedicated external power supply unit(s) intended to supply specific equipment within the scope of IEC 62368-1.

This standard also does not cover RFT circuits and other specific communication technologies within the scope of IEC 63316.

NOTE 2 Power sources with wireless communication protocol where the power transfer occurs through a physical cable connection are outside the scope of this document.

2 Normative references

The Normative references clause is a mandatory element of the text.

For rules on the drafting of the Normative references, refer to the ISO/IEC Directives, Part 2:2018, Clause 15.

This clause cannot be deleted. It will be filled in automatically. As you draft your text, you will be asked to confirm whether the references you use are informative or normative. If they are normative, they will appear here. If they are informative, they will appear in the bibliography.

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- 176 EN IEC 63044-3:2018 , *Home and Building Electronic Systems (HBES) and Building Automation and Control*
177 *Systems (BACS) - Part 3: Electrical safety requirements*
- 178 IEC 60730-1:2013/AMD2 , *Amendment 2 - Automatic electrical controls - Part 1: General requirements*
179
- 180 IEC 61508-4:2010 , *Functional safety of electrical/electronic/programmable electronic safety-related systems*
181 *- Part 4: Definitions and abbreviations (see <http://www.iec.ch/functionalsafety>)>Functional Safety*
182 *and IEC 61508)*
183
- 184 IEC 61784-3 , *Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses - General*
185 *rules and profile definitions*
- 186 IEC 61784-3:2016+AMD1:2017 CSV:2017 , *Industrial communication networks - Profiles - Part 3: Functional*
187 *safety fieldbuses - General rules and profile definitions*
- 188 IEC 62368-1 , *Audio/video, information and communication technology equipment - Part 1: Safety*
189 *requirements*
- 190 IEC 62368-1:2018 , *Audio/video, information and communication technology equipment - Part 1: Safety*
191 *requirements*
- 192 IEC 62680-1-1:2015 , *Universal serial bus interfaces for data and power - Part 1-1: Common components -*
193 *USB Battery Charging Specification, Revision 1.2*
- 194 IEC 62680-1-2:2021 , *Universal serial bus interfaces for data and power - Part 1-2: Common components -*
195 *USB Power Delivery specification*
- 196 IEC 63002:2021 , *Interoperability specifications and communication method for external power supplies used*
197 *with computing and consumer electronics devices*
- 198 IEC 63002 , *Interoperability specifications and communication method for external power supplies used with*
199 *computing and consumer electronics devices*
- 200 ISO 19722 , *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for*
201 *determination of photocatalytic activity on semiconducting photocatalytic materials by dissolved oxygen*
202 *consumption*
- 203 ISO/IEC 10118-1 , *Information technology - Security techniques - Hash-functions - Part 1: General*
204
- 205 ISO/IEC 11770-1 , *Information technology — Security techniques — Key management — Part 1: Framework*
206
- 207 ISO/IEC 14888-1 , *Information technology - Security techniques - Digital signatures with appendix - Part 1:*
208 *General*
- 209 ISO/IEC 15946-1 , *Information technology - Security techniques - Cryptographic techniques based on elliptic*
210 *curves - Part 1: General*
- 211 ISO/IEC 18033-1 , *Information technology - Security techniques - Encryption algorithms - Part 1: General*
212
- 213 ISO/IEC 29192-1 , *Information technology -- Security techniques -- Lightweight cryptography -- Part 1:*
214 *General*
- 215 ISO/IEC 9796 , *Information technology — Security techniques — Digital signature scheme giving message*
216 *recovery*
217
- 218 ISO/IEC 9797 , *Data cryptographic techniques — Data integrity mechanism using a cryptographic check*
219 *function employing a block cipher algorithm*
220
- 221 ISO/IEC 9798-1 , *Information technology -- Security techniques -- Entity authentication -- Part 1: General*
222
223

Continued on page 8