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Date: 20 September 2023

Origin: International

Latest date for receipt of comments: 11 October 2023

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 IEC 63315 Audio/Video, Information and Communication Technology Equipment - Safety - DC power transfer between ICT equipment ports using ICT wiring and cables at - 60 V DC

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

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- iii) requires additional national guidance or information

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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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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
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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.	



108/813/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:

IEC 63315 ED1

DATE OF CIRCULATION:

2023-09-15

CLOSING DATE FOR COMMENTS:

2023-11-10

SUPERSEDES DOCUMENTS:

108/801/CD, 108/812/CC

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:

TC 23,TC 34,TC 61,TC 62,TC 100

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

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Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Audio/Video, Information and Communication Technology Equipment – Safety – DC power transfer between ICT equipment ports using ICT wiring and cables at ≤ 60 V DC

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY
EQUIPMENT – SAFETY – DC POWER TRANSFER BETWEEN ICT
EQUIPMENT PORTS USING ICT WIRING AND CABLES AT ≤ 60 V DC**

FOREWORD

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- IEC 63315 has been prepared by IEC technical committee 108: Safety of electronic equipment within the field of audio/video, information technology and communication technology. It is an International Standard.
- This first edition cancels and replaces IEC 62368-3:2017, Clause 5. This edition constitutes a technical revision.
- This edition includes the following significant technical changes with respect to IEC 62368-3, Clause 5:
- a) Establishes unique requirements for local and **remote ICT interfaces (3.11)**;
 - b) Addition of requirements for non-static **power sourcing equipment**, including supplementary **safeguards** for PS3;
 - c) Addition of protocol **safeguards** for **data packet negotiated power systems**;
 - d) Addition of cable requirements.

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

125
126 Full information on the voting for its approval can be found in the report on voting indicated in
127 the above table.

128 The language used for the development of this International Standard is English.

129 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in
130 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement,
131 available at www.iec.ch/members_experts/refdocs. The main document types developed by
132 IEC are described in greater detail at www.iec.ch/publications.

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

- 136 • reconfirmed,
137 • withdrawn,
138 • replaced by a revised edition, or
139 • amended.

140

INTRODUCTION

141 This document prescribes **safeguards**, test methods and compliance requirements intended
142 to reduce the risk of fire associated with voltage and current used by standardized, common
143 ICT interfaces that are used for power delivery at voltages not exceeding 60 V DC.

144 This document may be used with IEC 62368-1 or other electrotechnical product standards to
145 provide additional **safeguards** when products with common ICT interfaces are connected.

146 IEC 62368-1 defines Power sourcing (PS) energy levels with **safeguards** to reduce risk of fire. IEC
147 63315 defines interface compatibility **safeguards** to address disparity between expected energy and
148 available energy of **power sourcing equipment** and the **powered device** by establishing expected
149 values which can be tested independently.

150 This document does not replace the requirements of other applicable safety standards.

151

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT – SAFETY – DC POWER TRANSFER BETWEEN ICT EQUIPMENT PORTS USING ICT WIRING AND CABLES AT ≤ 60 V DC

1 Scope

This document applies to any equipment intended to supply and/or receive charging and/or operating power from Information and Communication Technology (ICT) interfaces using ICT wiring or cables. It covers particular requirements for circuits that are designed to transfer DC power through an ICT interface from a **power sourcing equipment (PSE)** to a **powered device (PD)** for equipment that uses rated interfaces at voltage not exceeding 60 V DC.

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

- PoE
- USB
- HDMI
- 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.

PSE (3.2) and **PD (3.3)** using other **power delivery specifications (3.1)** that differ from the industry standard **power delivery specification (3.1)** defined for use with the industry standard connector are in scope of this document.

Unless otherwise stated, this document does not cover:

- power sources with output connectors not associated with a **local ICT interface (3.9)** or **remote ICT interface (3.11)**;
- custom connectors that are not interchangeable with common ICT interface connectors;
- non-static power sources (3.12) which can deliver power to multiple **PDs** through a single port or cable;
- power sources with wireless power transfer;
- power sources which utilize a wireless communication protocol (3.10) (e.g. Bluetooth®) to control the power transfer through a physical cable connection. RFT circuits and other specific communication technologies within the scope of IEC 63316.

NOTE 2 A custom connector is a connector that is not used with an industry communication standard.

Refer to Annex E for examples of common interfaces which are in or out of scope of this document.

2 Normative references

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.

IEC 60730-1:2013/AMD2, *Amendment 2 – Automatic electrical controls – Part 1: General requirements*

IEC 61784-3:2021, *Industrial communication networks – Profiles – Part 3: Functional safety fieldbuses - General rules and profile definitions*

197 IEC 62368-1, *Audio/video, information and communication technology equipment – Part 1:*
198 *Safety requirements*

199 IEC 62680-1-1:2015, *Universal serial bus interfaces for data and power – Part 1-1: Common*
200 *components – USB Battery Charging Specification, Revision 1.2*

201 IEC 62680-1-2:2022, *Universal serial bus interfaces for data and power – Part 1-2: Common*
202 *components – USB **Power Delivery specification***

203 IEC 63002:2021, *Interoperability specifications and communication method for external power*
204 *supplies used with computing and consumer electronics devices*

205 IEC 63044-3:2017, *Home and Building Electronic Systems (HBES) and Building Automation*
206 *and Control Systems (BACS) – Part 3: Electrical safety requirements*

207 ITU-T K.50:2018, *Safe limits for operating voltages and currents of telecommunication*
208 *systems powered over the network*

209 **3 Terms and definitions and abbreviated terms**

210 For the purposes of this document, the terms and definitions from 62368-1 IEC 62368-1 and in
211 this document 62368-1 are indicated in bold.

212 ISO and IEC maintain terminology databases for use in standardization at the following
213 addresses:

- 214 • IEC Electropedia: available at <https://www.electropedia.org/>
- 215 • ISO Online browsing platform: available at <https://www.iso.org/obp>

216 **3.1**

217 **power delivery specification**

218 a formal statement of those characteristics of a particular ICT interface necessary to ensure
219 power delivery compatibility between the **power sourcing equipment**, **powered device**,
220 cable, and connector interface

221 Note 1 to entry: A **power delivery specification** will normally indicate the protocols and procedure(s) which
222 determine if the (given) requirements are fulfilled. This includes voltage, current, and power ranges.

223 Note 2 to entry: A **power delivery specification** may include one or more documents, including design,
224 interoperability, and/or test specifications.

225 Note 3 to entry: An industry standard power delivery specification is the specification for the industry standard
226 connector. Other power delivery specifications may exist, including a manufacturer's specification, which differ
227 from the industry standard power delivery specification.

228 [ISO/IEC Guide 2:2004, 3.4, modified]

229 **3.2**

230 **power sourcing equipment**

231 **PSE**

232 equipment supplying DC power from an ICT interface to a **PD (3.3)** through ICT wiring or
233 cables. [ITU-T K.50:2018, 3.2.11, **power sourcing equipment**, modified]

234 Note 1 to entry: It should be noted that ISO/IEC/IEEE 8802-3:2021 has a different definition.

235 **3.3**

236 **powered device**

237 **PD**

238 equipment supplied with DC power through its ICT interface by a **PSE (3.2)** into an ICT
239 interface via ICT wiring or cables [ITU-T K.50:2018, 3.2.10, powered equipment; PSE
240 modified]

241 Note to entry: It should be noted that ISO/IEC/IEEE 8802-3:2021 has a different definition.

242 3.4

243 Information and Communication Technology Network

244 ICT Network

245 transmission medium, including its associated equipment, ICT wiring and communication cables

246 Note 1 to entry: An ICT cable consists of two or more conductors intended for communication and/or power transfer
247 between the various parts of ICT equipment. The equipment may be located within the same or separate
248 structures, buildings or locations, excluding:

249 – the **mains** system for supply, transmission and distribution of electrical power, if used as a communication
250 transmission medium;

251 – a dedicated HBES/BACS network. The requirement for interconnection with external circuits in an HBES/BACS
252 network is given in IEC 63044-3:2017.

253 Note 2 to entry: This may include some twisted pair circuits, and may include circuits, that are subjected to
254 transients as indicated by Table 13 of 62368-1/IEC 62368-1

255 Note 3 to entry: An **ICT network** may be:

256 – publicly or privately owned;

257 – subject to longitudinal (common mode) as well as transverse (differential) voltages and currents induced from
258 nearby power lines or electric traction lines.

259 – Note 4 to entry: ICT wiring and cables include common audio and video (AV) connectors used with ICT
260 equipment (e.g. HDMI) but does not include AV connectors providing power for acoustics (e.g. audio amplifiers
261 connectors for speakers)

262 3.5

263 building wiring

264 ICT and AV wires or cables that are intended to be installed wholly within a structure

265 EXAMPLE 1 Wires or cables installed in walls, under floors, in plenums, risers, etc. in a building or structure, that
266 are used to connect ICT and AV equipment in different locations within the building and that is not mains. It also
267 includes **devices** associated with the interconnection of the equipment, LAN cables, telecommunication cables, data
268 cables, patch panels, connectors, etc.

269 Note 1 to entry: Under certain circumstances **building wiring** may run outside the building for connection to
270 equipment (for example, a video camera outside of the building).

271 Note 2 to entry: **Building wiring** also includes **devices** associated with the interconnection of the equipment. The
272 cables may be conductive or non-conductive, such as fibre optic cable.

273 3.6

274 cyclic redundancy check

275 CRC

276 cyclic code used to protect messages from the influence of data corruption

277 Note 1 to entry: A **CRC's (3.y)** code (i.e. check value) is generated using message data and a generator polynomial.

278 Note 2 to entry: A **CRC's (3.y)** code can be provided with various lengths in bits, referred to as a n-bit **CRC (3.y)** where the n is
279 the number bits of the check value.

280 Note 3 to entry: A **CRC's (3.y)** code is appended to the **protocol (3.x)** message which is used to validate data integrity on the
281 receiving end.

282 [SOURCE: IEC ref 821-11-10, cyclic redundancy check, modified]

283 3.7

284 data packet negotiated power system

285 type of **remote ICT interface (3.11)** or **local ICT interface (3.9)** that requires data packet
286 handshaking negotiation between a **PD** and a **PSE** to establish an agreed upon DC power
287 output from the **PSE**

288 Note 1 to entry: USB Power Delivery is an example of a **data packet negotiated power system (3.7)**, which can
289 also be considered a type of **non-static power source (3.12)**.