SLOVENSKI STANDARD
oSIST prEN IEC 62368-1:2022/oprAA:2022

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Oprema za avdio/video, informacijsko in komunikacijsko tehnologijo - 1. del: Varnostne zahteve - Dopolnilo AA

Audio/video, information and communication technology equipment - Part 1: Safety requirements

Einrichtungen für Audio/Video-, Informations- und Kommunikationstechnik – Teil 1: Sicherheitsanforderungen

Équipements des technologies de l'audio/vidéo, de l'information et de la communication - Partie 1: Exigences de sécurité

Ta slovenski standard je istoveten z: prEN IEC 62368-1:2022/prAA:2022

ICS:

33.160.01	Avdio, video in avdiovizualni sistemi na splošno	Audio, video and audiovisual systems in general
35.020	Informacijska tehnika in tehnologija na splošno	Information technology (IT) in general

oSIST prEN IEC 62368-1:2022/oprAA:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

Audio/video, information and communication technology equipment - Part 1: Safety requirements

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This draft amendment prAA, if approved, will modify the European Standard prEN IEC 62368-1:2022; it is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2022-05-20.

It has been drawn up by CLC/TC 108X.

If this draft becomes an amendment, CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

This draft amendment was established by CENELEC in three official versions (English, French, German).
A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (prEN IEC 62368-1:2022/prAA:2022) has been prepared by CLC/TC 108X “Safety of electronic equipment within the fields of Audio/Video, Information Technology and Communication Technology”.

This document is currently submitted to the Enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 36 months (to be confirmed or modified when voting)

This document is read in conjunction with prEN IEC 62368-1:2022.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annexes ZZA, ZZB and ZZC which are integral parts of this document.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:202x are prefixed “Z”.

1 Modification to the whole document

Delete *all the "country" notes in the reference document according to the following list:*

0.2.1	Note 1 and Note 2	1	Note 4 and Note 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and Note 2
5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and Note 3	5.4.2.3.2.4 Table 13	Note 2
5.4.2.5	Note 2	5.4.5.1	Note	5.4.10.2.1	Note
5.4.10.2.2	Note	5.4.10.2.3	Note		
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and Note 3 and Note 4
5.6.8	Note 2	5.7.7.1	Note 1 and Note 2	8.5.4.2.3	Note
10.2.1 Table 39	Note 3 and Note 4 and Note 5	10.5.3	Note 2	10.6.1	Note 3
F.3.3.6	Note 3	Y.4.1	Note	Y.4.5	Note

2 Modification to Clause 1

Add *the following note at the end of the Clause 1:*

NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.

Add *the following paragraph and note after NOTE 5:*

This document is a type test standard.

NOTE Z2 **Routine tests** of complete equipment, sub-assemblies or components are covered by EN 62911.

3 Modification to Clause 4

Add *the following new subclause 4.Z1 after subclause 4.9:*

For compliance with B.3 and B.4 in circuits connected to an AC **mains**, protective **devices** shall be provided, subject to the following:

— for **pluggable equipment type A**, the protective **devices** shall be included as parts of the equipment, with the exception of components in series with the **mains** input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, for which the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet;

— for **pluggable equipment type B** or **permanently connected equipment**, the protection may be the dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, for example a fuse or circuit breaker, is fully specified in the installation instructions.

Where protective **devices** are required within the equipment, the protective **devices** within the equipment shall operate before or at the same time the expected building installation protection will operate.

For earth faults in single-phase equipment, it is not necessary to provide 2 protective **devices**. It is expected that the building installation will protect against earth faults. This applies also in countries where an IT power distribution system is used.

4 Modification to 4.1.9

Add *the following paragraph to the end of this subclause:*

Products shall comply with the requirements of this document with appropriate measurement uncertainty.

NOTE Z1 See also the RED Adco position on 'Measurement uncertainty in published harmonized standards'.

5 Modification to 5.4.9.1

Add *the following note after the 5th paragraph:*

NOTE Z1 For guidance on the use of high voltage source, see EN 60060-1, Clause 8 of EN 60243-1 and EN 61180.

6 Modification to 5.4.2.3.2.4

Add *the following to the end of this subclause:*

The requirement for interconnection with **external circuit** in a HBES/BACS network is in addition given in EN IEC 63044-3:2018.

7 Modification to 5.6.6.2

Replace *item d) with the following:*

*d) For equipment powered from a DC **mains**, if the **protective current rating** of the circuit under test exceeds 25 A, the test current shall be minimum as required in item a), unless the manufacturer specifies a higher value.*

8 Modification to 9.3.1

Replace *the second paragraph with the following:*

An **accessible** part that, while in contact with the body, is likely to drop in temperature upon touch can be evaluated under the limits of Annex A in IEC Guide 117:2010 using the test method of 4.5 of IEC Guide 117.

9 Modification to 10.2.1

Add *the following to [c] and [d] in Table 38:*

For additional requirements, see 10.5.1.

10 Modification to 10.4.1

Replace *the second paragraph of 10.4.1 with:*

Electronic light effect equipment does not have to comply with the requirements of 10.4. However, IEC TR 62471-2 shall be considered and proper installation instructions shall be provided.

Replace *the ninth paragraph of 10.4.1 with:*

The following information shall be provided in the user manual for safe operation and installation. This information shall also be provided for safe operation by a **skilled person** who may be exposed to Risk Group 3 energy levels.

— Adequate instructions for proper assembly, installation, maintenance and safe use, including clear warnings concerning precautions to avoid possible exposure to hazardous optical radiation; and

— Advice on safe operating procedures and warnings concerning **reasonably foreseeable misuse**, malfunctions and hazardous failure modes. Where servicing and maintenance procedures are detailed, they shall include explicit instructions on safe procedures to be followed; and

— The marking on the equipment shall be reproduced in the user manual. A yellow background is not required in the user manual.

11 Modification to 10.4.4

Replace *the last paragraph of 10.4.4 with:*

Compliance against material degradation from UV radiation is checked by the applicable tests of Annex C.

12 Modification to 10.5.1

Add *the following after the first paragraph:*

For RS1 compliance is checked by measurement under the following conditions:

In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.

NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.

The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm^2, at any point 10 cm from the outer surface of the apparatus.

Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.

For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.

NOTE Z2 These values appear in Directive 2013/59/Euratom of 5th December 2013.

13 Modification to 10.5.3

Replace *the second paragraph of 10.5.3 with:*

The amount of radiation is determined by means of a radiation monitor of the ionizing chamber type with an effective area of 1 000 mm^2 ± 10 mm^2 or by measuring equipment of other types giving equivalent results.

14 Modification to Clause 10

Replace 10.6 of EN IEC 62368-1 with the following:

10.6 Safeguards against acoustic energy sources

10.6.1 General

Safeguard requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered.

A personal music player is a portable equipment intended for use by an **ordinary person**, that:

— is designed to allow the user to listen to audio or audiovisual content / material; and

— uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and

— has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.).

EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.

Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.

NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.

NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.

Listening devices sold separately shall comply with the requirements of 10.6.6.

These requirements are valid for music or video mode only.

The requirements do not apply to:

— professional equipment;

NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.

— hearing aid equipment and other devices for assistive listening;

— the following type of analogue personal music players:

- long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and
- cassette player/recorder;

NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.

— a player while connected to an external amplifier that does not allow the user to walk around while in use.

For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.

The relevant requirements are given in EN 71-1:2014+A11:2018, 4.20 and the related tests methods and measurement distances apply.

10.6.2 Classification of devices without the capacity to estimate sound dose

10.6.2.1 General

This standard is transitioning from short-term based (30 s) requirements to long-term based (40 h) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3.

For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period.

For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song.

NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit.

For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.

10.6.2.2 RS1 limits (to be superseded, see 10.6.3.2)

RS1 is a class 1 acoustic energy source that does not exceed the following:

— for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1.

— for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or −25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.

— The RS1 limits will be updated for all devices as per 10.6.3.2.

10.6.2.3 RS2 limits (to be superseded, see 10.6.3.3)

RS2 is a class 2 acoustic energy source that does not exceed the following:

— for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1.

— for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or −10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.

10.6.2.4 RS3 limits

RS3 is a class 3 acoustic energy source that exceeds RS2 limits.

10.6.3 Classification of devices (new)

10.6.3.1 General

Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.

10.6.3.2 RS1 limits (new)

RS1 is a class 1 acoustic energy source that does not exceed the following:

— for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1.

— for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or −30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.

10.6.3.3 RS2 limits (new)

RS2 is a class 2 acoustic energy source that does not exceed the following:

— for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly **sound exposure level**, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1.

— for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN 50332-3, shall be ≤ 15 mV (analogue interface) or −30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.

10.6.4 Requirements for maximum sound exposure

10.6.4.1 Measurement methods

All volume controls shall be turned to maximum during tests.

Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.

10.6.4.2 Protection of persons

Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3.

NOTE 1 Volume control is not considered a **safeguard.**

Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use.

The elements of the **instructional safeguard** shall be as follows:

— element 1a: the symbol  , IEC 60417-6044 (2011-01)

— element 2: “High sound pressure” or equivalent wording

— element 3: “Hearing damage risk” or equivalent wording

— element 4: “Do not listen at high volume levels for long periods.” or equivalent wording

An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off.

The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.

NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.

NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off.

A **skilled person** shall not be unintentionally exposed to RS3.

10.6.5 Requirements for dose-based systems

10.6.5.1 General requirements

Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause.

The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration.

The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.

10.6.5.2 Dose-based warning and requirements

When a dose of 100 % *CSD* is reached, and at least at every 100 % further increase of CSD, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1.

The warning shall at least clearly indicate that listening above 100 % *CSD* leads to the risk of hearing damage or loss.

10.6.5.3 Exposure-based requirements

With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at.

The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster.

Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the un-weighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than −10 dBFS for a digital interface.

NOTE In case the source is known not to be music (or test signal), the EL may be disabled.

10.6.6 Requirements for listening devices (headphones, earphones, etc.)

10.6.6.1 Corded listening devices with analogue input

With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV.

NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.

10.6.6.2 Corded listening devices with digital input

With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.

10.6.6.3 Cordless listening devices

In cordless mode,

- with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and
- respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and
- with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.

10.6.6.4 Measurement method

Measurements shall be made in accordance with EN 50332-2 as applicable.