

INTERNATIONAL STANDARD

Analogue audio disk records and reproducing equipment

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[IEC 60098:2020](#)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ANALOGUE AUDIO DISK RECORDS AND REPRODUCING EQUIPMENT

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International Standard IEC 60098 has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

This fourth edition cancels and replaces the third edition published in 1987. This edition constitutes a full revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) addition of a tolerance on groove width.

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

CDV	Report on voting
100/3261/CDV	100/3331/RVC

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

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

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

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- withdrawn,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

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

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ANALOGUE AUDIO DISK RECORDS AND REPRODUCING EQUIPMENT

1 Scope

This document applies to analogue audio disk records and the corresponding professional and domestic reproducing equipment. It excludes amplifiers and loudspeakers, methods of measurement for which can be found in IEC 60268-3, IEC 60268-5, IEC 60268-21 and IEC 60268-22¹.

This document specifies the characteristics that are necessary to ensure compatibility between analogue audio disk records and the corresponding reproducing equipment.

It also lists and defines the most important characteristics affecting the performance of reproducing equipment, and establishes agreed methods of measurement for these characteristics

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 60050-806:1996, *International Electrotechnical Vocabulary (IEV) – Part 806: Recording and reproduction of audio and video*

IEC 60050-806:1996/AMD1:2001

IEC 60050-806:1996/AMD2:2018

IEC 60263:1982, *Scales and sizes for plotting frequency characteristics and polar diagrams*

IEC 60386:1972, *Method of measurement of speed fluctuations in sound recording and reproducing equipment*

IEC 60417, *Graphical symbols for use on equipment* (available at <http://www.graphical-symbols.info/equipment>)

IEC 61672-1:2013, *Electroacoustics – Sound level meters – Part 1: Specifications*

IEC 62368-1:2018, *Audio/video, information and communication technology equipment – Part 1: Safety requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-806 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>

¹ Under preparation. Stage at the time of publication: IEC CDV 60268-22:2019.

- IEC Electropedia: available at <http://www.electropedia.org/>

**3.1
rated value**

value of a quantity used for specification purposes, established for a specified set of operating conditions of a component, device, equipment, or system

Note 1 to entry: The rated value is normally the value stated by the manufacturer.

[SOURCE: IEC 60050-151:2001, 151-16-08, modified – Note 1 to entry has been added.]

**3.2
terminated, adj**

<of a circuit or connection port> connected to a specified impedance required for correct operation or for specified test conditions

Note 1 to entry: 'Specified test conditions' can include open-circuit and short-circuit.

4 General

4.1 Scales for graphical presentation of data

Linear or logarithmic scales are recommended for graphical presentation. Linear decibel scales are equivalent to logarithmic scales. Other kinds of scale, such as double logarithmic, should be avoided. When using decibel scales, the zero reference should, if possible, be the rated value. In those cases, where each of the scales refers directly to physical units, it is recommended to avoid a combination of linear and logarithmic scales.

Where quantities represented by the axes are of the same kind, it is recommended that the same unit length be used for both.

Linear scales with remote zero point should be avoided as far as possible. For further information, see IEC 60263.

4.2 Scales for frequency characteristics

Graphs should be drawn with frequency in Hz on the *x*-axis with a logarithmic scale, and the level expressed in dB on the *y*-axis with a linear scale. The scale ratio should be such that the length representing one decade of frequency is the same as the length representing a 25 dB or a 50 dB difference in level. The preferred length per decade is 50 mm. If the size of the graph is changed, the scale ratio should be left unaltered.

5 The disk

5.1 Types of disk records

The types of disk record given in Table 1 shall be standard.

Table 1 – Standard types of disk

Type designation	Nominal diameter (cm)	Nominal speed (rev/min)
3033	30	33 $\frac{1}{3}$
2533	25	33 $\frac{1}{3}$
1733	17	33 $\frac{1}{3}$
3045	30	45

Type designation	Nominal diameter (cm)	Nominal speed (rev/min)
2545	25	45
1745	17	45

5.2 Dimensions of disks

The dimensions for types 30xx and 25xx are shown in Figure 1.

Dimensions in millimetres

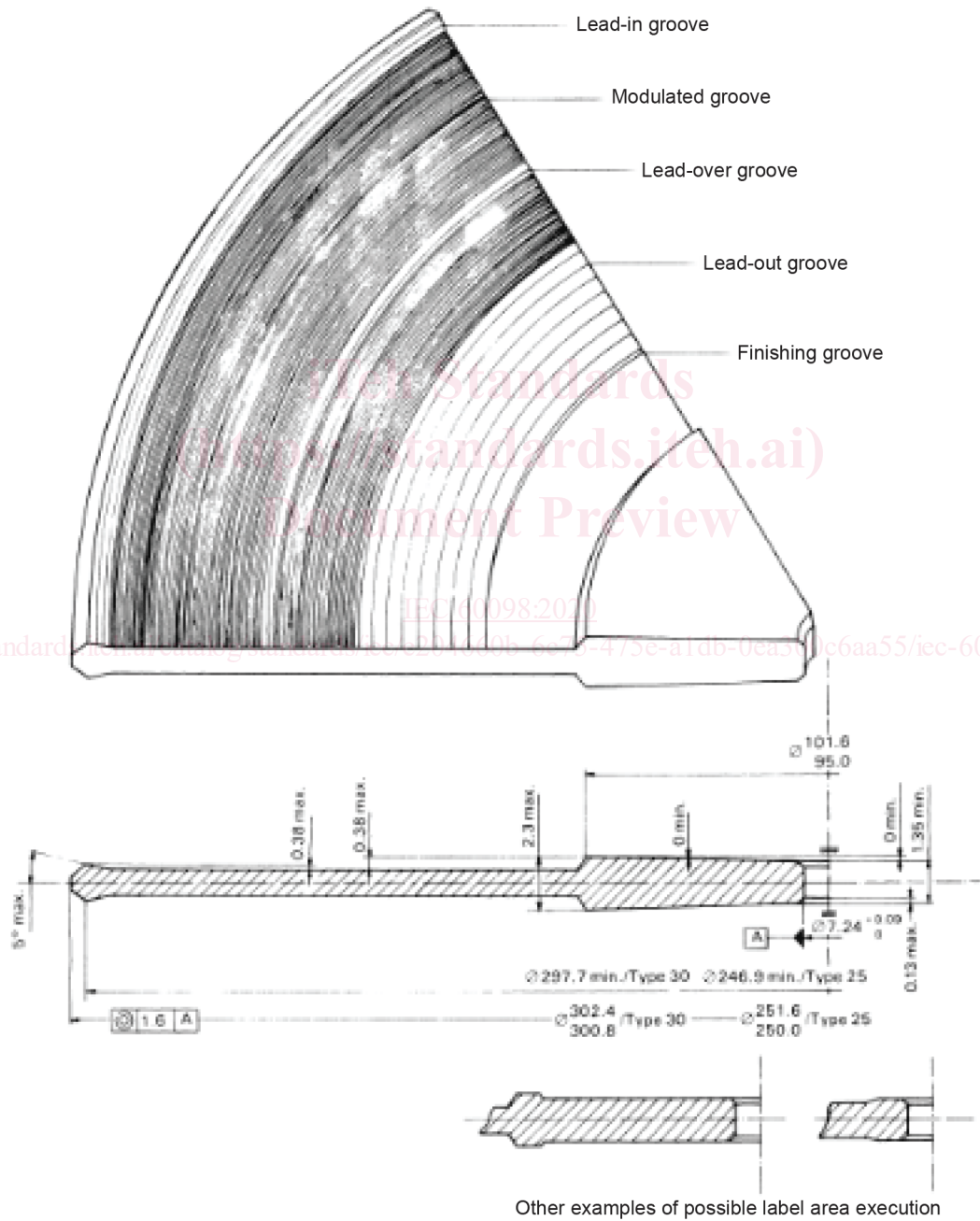
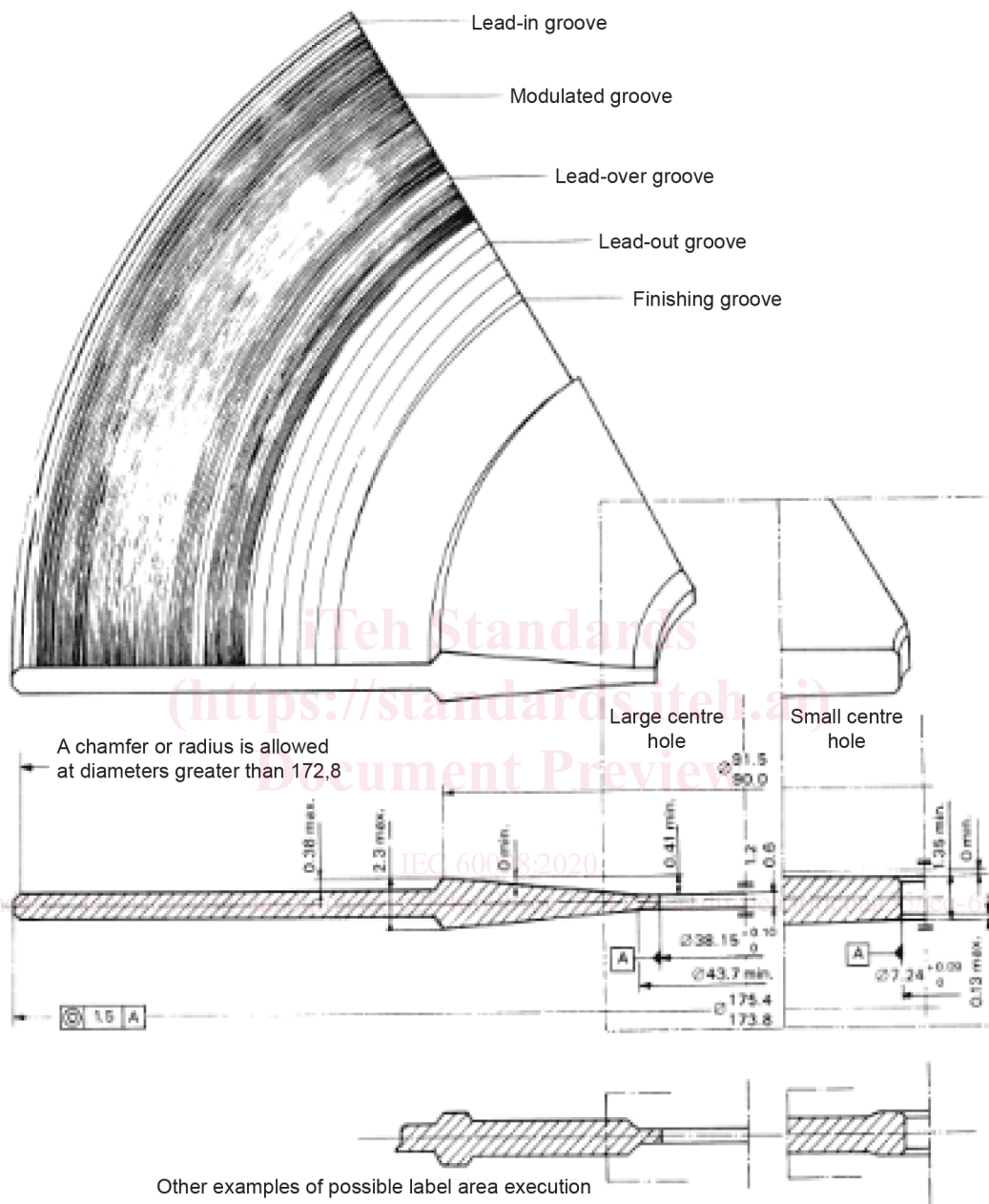


Figure 1 – Dimensions for record types 30xx and 25xx

The dimensions for type 17xx are shown in Figure 2.

Dimensions in millimetres



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A small centre hole click may have an optional push-out centre that, when removed, leaves the large centre hole dimensions. Both configurations should fulfil the requirements of the diagram.

An optional push-out centre should have a closed structure within a diameter of 16 mm concentric with the centre hole.

Figure 2 – Dimensions for record type 17xx

5.3 Unbalance of disks

The centre of gravity of disks having a small centre hole shall lie within an 8 mm diameter circle concentric with the centre of the centre hole.