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Audio archive system –
Part 1-2: BD disk and data migration for long-term audio data storage

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AUDIO ARCHIVE SYSTEM –

Part 1-2: BD disk and data migration for long-term audio data storage

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IEC 62702-1-2 has been prepared by technical area 6: Storage media, storage data structures, storage systems and equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

This second edition cancels and replaces the first edition published in 2017. This edition constitutes a technical revision.

In order to reflect the updates to ISO/IEC 29121:2021, this edition includes the following significant technical changes with respect to the previous edition:

a) ISO/IEC 16963 has been identified as the referee test method for the estimation of lifetime;
b) the ambient conditions for the measurement of maximum data error have been added;
c) the requirements for test drives have been changed considering the use condition of users;
d) the requirements for the estimated lifetime have been defined more clearly;
e) the requirements for the periodic performance test have been defined more clearly.

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

Draft	Report on voting
100/3671/CDV	100/3743/RVC

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

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

A list of all parts in the IEC 62702 series, published under the general title *Audio archive system*, can be found on the IEC website.

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

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INTRODUCTION

Sound recordings such as music, speech, and storytelling are an important human heritage and should be preserved for as long as possible. However, we were not able to record sounds in order to preserve them in the past. The first recording system, the phonautograph, was invented by Édouard-Léon Scott de Martinville in 1860 and, after that, Thomas Alva Edison invented the recording and playback system known as the phonograph in 1877.

Although various technologies were invented later, most of them have limitations for audio archives because storage lifetime is limited, and the sound quality deteriorates when it is transferred to the next generation of storage device.

The progress of LSI (Large-Scale Integrated Circuit) technology made digital recording of recorded sound possible. Digital recording is very suitable for audio archiving because the migration is performed by copying digital data.

For this purpose, various recording materials exist, such as optical disks, magnetic disks, magnetic tape, and non-volatile memory (such as phase-change memory).

This International Standard specifies physical and logical aspects for standards of audio archives of various storage types which are typically used for audio archives on the market.

The IEC 62702 series currently consists of:

- Part 1 specifies the minimum requirements on physical aspects of optical disks for digital sound recordings. Part 1-1 specifies DVD optical disks, and Part 1-2 specifies BD optical disks.

  NOTE DVD optical disks include DVD-R disk, DVD-RW disk, DVD-RAM disk and +R format disk, +RW format disk. BD optical disks include BD recordable disk and BD rewritable disk.

- Part 2 specifies the minimum requirements for digitization of content, format of digitised content, content information and media inspection.

AUDIO ARCHIVE SYSTEM –

Part 1-2: BD disk and data migration for long-term audio data storage

1 Scope

This part of IEC 62702 specifies a method of data-quality assurance for writable BD disks (hereafter referred to as "disks") which are specified for long-term data storage, and a data migration method which can sustain the recorded data on disks for long-term audio data preservation. The writable disks include BD recordable disk and BD rewritable disk.

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.

ISO/IEC 16963:2017, *Information technology – Digitally recorded media for information interchange and storage – Test method for the estimation of lifetime of optical disks for long-term data storage*

ISO/IEC 29121:~~2017~~2021, *Information technology – Digitally recorded media for information interchange and storage – Data migration method for optical disks for long-term data storage*

~~ISO/IEC 30190:2016, *Information technology – Digitally recorded media for information interchange and storage – 120 mm Single Layer (25,0 Gbytes per disk) and Dual Layer (50,0 Gbytes per disk) BD Recordable disk*~~

~~ISO/IEC 30191, *Information technology – Digitally recorded media for information interchange and storage – 120 mm Triple Layer (100,0 Gbytes single sided disk and 200,0 Gbytes double sided disk) and Quadruple Layer (128,0 Gbytes single sided disk) BD Recordable disk*~~

~~ISO/IEC 30192, *Information technology – Digitally recorded media for information interchange and storage – 120 mm Single Layer (25,0 Gbytes per disk) and Dual Layer (50,0 Gbytes per disk) BD Rewritable disk*~~

~~ISO/IEC 30193, *Information technology – Digitally recorded media for information interchange and storage – 120 mm Triple Layer (100,0 Gbytes per disk) BD Rewritable disk*~~

IEC 62702-1-2

Edition 2.0 2022-06

INTERNATIONAL STANDARD

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Audio archive system –
Part 1-2: BD disk and data migration for long-term audio data storage

Système d'archivage audio –
Partie 1-2: Disque BD et migration de données pour le stockage à long terme des données audio



IEC 62702-1-2:2022-06(en-fr)

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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SYSTÈME D'ARCHIVAGE AUDIO –

Partie 1-2: Disque BD et migration de données pour le stockage à long terme des données audio

AVANT-PROPOS

1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
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L'IEC 62702-1-2 a été établie par le domaine technique 6: Média de stockage, structures des données, équipements et systèmes, du comité d'études 100 de l'IEC: Systèmes et équipements audio, vidéo et services de données. Il s'agit d'une Norme internationale.

Cette deuxième édition annule et remplace la première édition parue en 2017. Cette édition constitue une révision technique.

Afin de refléter les mises à jour apportées à l'ISO/IEC 29121:2021, cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) l'ISO/IEC 16963 a été identifiée comme méthode d'essai de référence pour l'estimation de la durée de vie;

b) des conditions ambiantes ont été ajoutées pour le mesurage de l'erreur de données maximale;

c) les exigences relatives aux unités d'essai ont été modifiées en fonction des conditions d'utilisation des utilisateurs;

d) les exigences relatives à la durée de vie estimée ont été définies de manière plus précise;

e) les exigences relatives à l'essai périodique de performances ont été définies de manière plus précise.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
100/3671/CDV	100/3743/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Une liste de toutes les parties de la série IEC 62702, publiées sous le titre général *Système d'archivage audio*, se trouve sur le site web de l'IEC.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/standardsdev/publications.

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IMPORTANT – Le logo "colour inside" qui se trouve sur la page de couverture de cette publication indique qu'elle contient des couleurs qui sont considérées comme utiles à une bonne compréhension de son contenu. Les utilisateurs devraient, par conséquent, imprimer cette publication en utilisant une imprimante couleur.

INTRODUCTION

Les enregistrements sonores tels que la musique, la parole et les récits constituent un héritage humain important qu'il convient de préserver le plus longtemps possible. Toutefois, par le passé, les sons ne pouvaient pas être enregistrés à des fins de préservation. Inventé par Édouard-Léon Scott de Martinville en 1860, le phonautographe est le premier système conçu pour enregistrer les sons. Le premier système d'enregistrement et de lecture, le phonographe, a été inventé en 1877 par Thomas Alva Edison.

Même si différentes technologies ont été inventées par la suite, la plupart d'entre elles ont leurs limites en ce qui concerne l'archivage audio; la durée de vie du stockage est limitée, et la qualité du son se détériore lors de son transfert sur les dispositifs de stockage de nouvelle génération.

Les progrès de la technologie d'intégration à grande échelle (LSI, *Large-Scale Integrated*) ont rendu possible l'enregistrement numérique du son. L'enregistrement numérique est parfaitement adapté à l'archivage audio, car la migration est réalisée en copiant les données numériques.

À cette fin, il existe différents supports d'enregistrement tels que les disques optiques, les disques magnétiques, les bandes magnétiques et la mémoire non volatile (comme la mémoire à variation de phase).

Le présent document spécifie les aspects physiques et logiques des normes relatives aux archivages audio de différents types de stockages, habituellement utilisés pour les archivages audio sur le marché.

La série IEC 62702 se compose actuellement des parties suivantes:

- La Partie 1 spécifie les exigences minimales relatives aux aspects physiques des disques optiques pour les enregistrements sonores numériques. La Partie 1-1 spécifie les disques optiques DVD (Digital Versatile Disc), tandis que la Partie 1-2 spécifie les disques optiques BD (Blu-ray Disc).

  NOTE Les disques optiques DVD incluent les disques DVD-R, DVD-RW, DVD-RAM, le format +R et le format +RW. Les disques optiques BD incluent les disques enregistrables BD et les disques réenregistrables BD.

- La Partie 2 spécifie les exigences minimales relatives à la numérisation du contenu, au format du contenu numérisé, aux informations du contenu et à l'inspection du support.

SYSTÈME D'ARCHIVAGE AUDIO –

Partie 1-2: Disque BD et migration de données pour le stockage à long terme des données audio

1 Domaine d'application

La présente partie de l'IEC 62702 spécifie une méthode d'assurance de la qualité des données pour les disques BD inscriptibles (ci-après dénommés "disques") qui sont spécifiés pour le stockage à long terme des données, ainsi qu'une méthode de migration des données capable de conserver les données enregistrées sur les disques de manière à assurer la conservation à long terme des données audio. Les disques inscriptibles incluent les disques enregistrables BD (Blu-ray Disk) et les disques réenregistrables BD.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

ISO/IEC 16963:2017, *Information technology – Digitally recorded media for information interchange and storage – Test method for the estimation of lifetime of optical disks for long-term data storage* (disponible en anglais seulement)

ISO/IEC 29121:2021, *Information technology – Digitally recorded media for information interchange and storage – Data migration method for optical disks for long-term data storage* (disponible en anglais seulement)