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INTERNATIONAL STANDARD

# ISO/IEC 11976

First edition
2008-12-15

# Information technology — Data interchange on 130 mm rewritable and write-once-read-many ultra density optical (UDO) disk cartridges — Capacity: 60 Gbytes per cartridge — Second generation

*Échange de données sur cartouches de disque optique ultradense (UDO) de 130 mm «réinscriptible» ou «à écriture unique» — Capacité: 60 Gbytes par cartouche — Deuxième génération*

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Reference number
ISO/IEC 11976:2008(E)

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Published in Switzerland



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# Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 11976 was prepared by Ecma International (as ECMA-380) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

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# Introduction

Ecma Technical Committee TC31 was established in 1984 for the standardization of Optical Disks and Optical Disk Cartridges (ODC). Since its establishment, the Committee has made major contributions to ISO/IEC JTC 1/SC 23 toward the development of International Standards for optical disks with a diameter of 80 mm, 90 mm, 120 mm, 130 mm, 300 mm and 356 mm. Numerous standards have been developed by TC31 and published by Ecma, almost all of which have also been adopted by ISO/IEC under the fast-track procedure as International Standards.

The present Standard is the Second Generation of the UDO Standard initially published (1st Edition) as ECMA-350 in 2003 and as ISO/IEC 17345 in 2005.

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# Information technology — Data interchange on 130 mm rewritable and write-once-read-many ultra density optical (UDO) disk cartridges — Capacity: 60 Gbytes per cartridge — Second generation

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## Section 1 — General

### 1 Scope

This International Standard specifies the mechanical, physical, and optical characteristics of a 130 mm optical disk cartridge (ODC) that employs thermo-optical Phase Change effects to enable data interchange between such disks.

This International Standard specifies two types of disk.

— Type RW (Rewritable) provides for data to be written, read and erased many times over the recording surfaces of the disk.

— Type WORM (Write Once Read Many) provides for data once written to be read a multiplicity of times. This type uses a Write Once Read Many times recording material (written marks cannot be erased and attempted modifications of the written marks are detectable). Multisession (incremental write operations) recording may be performed on Type WORM disks.

The disk is two-sided with a nominal capacity of 30,0 Gbytes per side and the cartridge (two sides) provides a nominal capacity of 60,0 Gbytes.

This International Standard specifies the following:

— the conditions for conformance testing and the Reference Drive;

— the environments in which the cartridges are to be operated and stored;

— the mechanical, physical and dimensional characteristics of the cartridge so as to provide mechanical interchangeability between data processing systems;

— the format of the information on the disk, both embossed and user-written, including the physical disposition of the tracks and sectors, the error correction codes, the modulation methods used;

— the characteristics of the embossed information on the disk;

— the thermo-optical characteristics of the disk, enabling processing systems to write data onto the disk;

— the minimum quality of user-written data on the disk, enabling data processing systems to read data from the disk.

This International Standard provides for interchange between optical disk drives. Together with a standard for volume and file structure, it provides for full data interchange between data processing systems.

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## 2 Conformance

### 2.1 Optical disk

An ODC is in conformance with this International Standard if it meets all mandatory requirements specified therein.

A claim of conformance with this International Standard shall specify the Type, RW or WORM, implemented.

### 2.2 Generating system

A claim of conformance with this International Standard shall specify which Type(s) is (are) supported. A system generating an ODC for interchange is in conformance with this International Standard if it meets the mandatory requirements of this International Standard for the Type(s) supported.

### 2.3 Receiving system

A claim of conformance with this International Standard shall specify which Type(s) is (are) supported.

A system receiving an ODC for interchange is in conformance with this International Standard if it is able to process any recording made on the cartridge according to 2.1 on the Type(s) specified.

### 2.4 Compatibility statement

A claim of conformance with this International Standard shall include a statement listing any other Optical Disk Cartridge Standard supported by the system for which conformance is claimed. This statement shall specify the number of the Standard(s), including, where appropriate, the ODC Type(s), and whether support includes reading only or both reading and writing.

## 3 Normative references

The following referenced documents are indispensable for the application 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 28360:2007, *Information technology — Office equipment — Determination of chemical emission rates from electronic equipment*

ECMA-287 (2002), *Safety of electronic equipment*

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