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**Electronic imaging — Recommendations  
for the expungement of information  
recorded on write-once optical media**

*Imagerie électronique — Recommendations pour l'élimination des  
informations enregistrées sur disque optique WORM*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of Technical Committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an international standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an international standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an international standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 12037, which is a Technical Report of type 3, was prepared by Technical Committee ISO/TC 171, *Document imaging applications*, Subcommittee SC 3, *General issues*.

Annexes A and B are for information only.

## Introduction

This Technical Report describes procedures for court ordered expungement of information recorded on write-once media including the following technologies: Write-Once Read Many (WORM), Magneto-Optical Recording (MO), Compact Disk-Read Only Memory (CD-ROM), CD-ROM Recordable (CD-R) and optical tape. This report has been prepared for public offices such as courts, clerks of the court, law enforcement, social services, probation and parole, juvenile services, schools, archives, and vital records centres.

It is recognized that, unlike magnetic or magneto-optical storage media, write-once media is inherently difficult to alter. This Technical Report has been prepared to provide guidelines to ensure that uniform procedures are being followed, in order to minimize the possibility of having information recorded on write-once media rejected in a court of law. For example, a legally-ordered expungement, or expungement during file maintenance, may jeopardize the admissibility of the entire set of records as evidence in a court of law if the expungement is not documented and performed according to proper procedures.

Organizations that are subjected to expungement rulings should work with the manufacturer and manufacturer's engineering staff or supplier to obtain a satisfactory method to eliminate expunged data. Write-once media system users should address expungement prior to system implementation, in fact, as early as possible in the system design phase. Write-once optical media system users should further require vendors to demonstrate their expungement procedures and prepare a certification assuring that index data recovery and image recovery can not be performed following expungement. In addition, certification and demonstration should also be required when implementing write-once optical media system hardware or software upgrades.

Some write-once optical media systems have been implemented in such a way that makes expunging difficult or impossible. Unless the information to be expunged can be rendered uninterpretable through hardware and/or software processes, expungement can only take place by copying acceptable records (i.e., records that are not expunged) from one disk to another, destroying the first disk that contains negated record(s), and ensuring that all appropriate index entries have been updated to reflect the expungement. Update of index entries must ensure that no side effects related to unexpunged records occur. The issue of index update is critical because, according to the rules of an expungement, once an expungement has occurred, then it must be impossible to discern that the expungement has occurred.

One method of expungement that can be used includes arranging a controlled software module that would permit wiping out a record and any computer-based indices identifying the record. It is recommended that such a software module provide a double overwrite of the selected records to lessen the possibility of the destroyed information being reconstructed. Double overwrite procedures may vary between write-once media system manufacturers and suppliers due to different implementation methods.

# Electronic imaging — Recommendations for the expungement of information recorded on write-once optical media

## 1 Scope

This Technical Report applies to the removal of information recorded on write-once optical media systems when expungement is ordered by the court or administrative authority. Expungement requires specific removal actions to occur.

This report establishes procedures for both information removal and documentation of the actions taken during removal. Following the recommendations contained in this Technical Report will ensure that the expungements are performed consistently.

## 2 Reference

ISO/TR 12654:1997, *Electronic imaging — Recommendations for the management of electronic recording systems for the recording of documents that may be required as evidence, on WORM optical disk.*

## 3 Terms and definitions

For the purpose of this Technical Report the following definitions apply.

### 3.1

#### **amendment**

correction or revision

### 3.2

#### **bit-map**

method of representing images by assigning an individual memory location for each picture element

### 3.3

#### **capture**

recording of data in a form for its entry into a computer system

### 3.4

#### **compact disk — read only memory**

##### **CD-ROM (abbreviation)**

optical disk containing prerecorded data and used only for reading

### 3.5

#### **compact disk — write-once-read-many**

##### **CD-WORM (abbreviation)**

optical disk that is user written and then is only available for reading