TECHNICAL REPORT

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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

Imagerie électronique — Recommandations relatives à la gestion des systèmes électroniques d'enregistrement, pour l'enregistrement de documents ayant valeur de preuve, 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 Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.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 12654, which is a Technical Report of type 3, was prepared by Technical Committee ISO/TC 171, *Document imaging applications*, Subcommittee SC 3, *General issues.*

Introduction

Although this Technical Report refers only to WORM optical disk systems this does not necessarily imply that other recording systems are unlikely to be legally acceptable. As noted below this is for the courts to decide. Other documents are in preparation by ISO/TC 171/SC 3 addressing other recording systems.

Many organizations now use optical storage media for keeping records generated or received in the normal course of business. Optical storage systems provide a particularly compact form of storage that facilitates an efficient method of retrieval, provided an index is maintained.

For the purpose of legal admissibility, electronic images can replace large volumes of paper files only if the organization is confident that documents may be destroyed once their images have been recorded. Occasionally documents produced in the normal course of business have to be produced in evidence and at that stage the legal admissibility of electronic images of documents becomes important.

Unlike information written on paper, which is directly intelligible, information recorded on optical storage media requires electronic equipment, e.g. a computer terminal, to make it intelligible to the reader. The integrity of an electronic image of a document can best be demonstrated by showing that it was made, and the hard copy version destroyed, with proper safeguards, as, part of normal business practice.

This Technical Report has therefore been prepared to help organizations that use, or plan to use, optical storage for documents to ensure that properly planned and authorized procedures are introduced and followed, so that, if a document should be required in evidence, its electronic image can be shown to have been produced as part of normal business practice and its integrity established. Because the laws of evidence vary from one country to another, the advice given in this Technical Report is very general. Legal experts should be consulted about the requirements for legal admissibility that apply in any particular country.

WARNING

Readers should note that it is for their national legal system to decide what is admissible and how much weight is attached to it. No guarantee can be given that the electronic image of any document will automatically be admissible.

Any organization that decides to establish a system for storing records on optical disk should seek legal advice in the country in which the system will operate.

Electronic imaging — Recomendations for the management of electronic recording systems for the recording of documents that may be required as evidence, on WORM optical disk

1 Scope

This Technical Report makes recommendations to be followed in establishing procedures for the capture and storage of electronic images of documents that will ensure the preservation and integrity of the information recorded on the documents.

This Technical Report applies to optical storage systems that use only media of a non-reversible Write-Once-Read-Many (WORM) type including compact disk (CD-ROM) to store electronic images of documents. It does not apply to systems that allow an image to be erased or altered after capture.

2 References

ISO/IEC 9171-1:1990, *Information technology — 130 mm optical disk cartridge, write-once, for information interchange — Part 1: Unrecorded optical disk cartridge*.

ISO/IEC 9171-2:1990, *Information technology — 130 mm optical disk cartridge, write-once, for information interchange — Part 2: Recording format*.

ISO/IEC 10885:1993, *Information technology — 356 mm optical disk cartridge for information interchange — Write once*.

ISO/IEC 13403:1995, *Information technology — Interchange on 300 mm optical disk cartridges of the write once read multiple (WORM) type using the CCS method*.

ISO/IEC 13614:1995, *Information technology — Interchange on 300 mm optical disk cartridges of the write once read multiple (WORM) type using the SSF method*.

ISO/IEC 13490-1:1995, *Information technology — Volume and file structure of read-only and write-once compact disk media for information — Part 1: General*.

ISO/IEC 13490-2:1995, *Information technology — Volume and file structure of read-only and write-once compact disk media for information — Part 2: Volume and file structure*.

3 Establishing procedure

3.1 Principles

If an electronic image is produced in evidence instead of an original document, the organization responsible should be able to show that the image can be relied upon as being an accurate and reliable representation of the original. An organization that plans to destroy originals once they have been captured should therefore establish procedures that include safeguards against falsification and error. A member of staff should be made responsible for ensuring that the procedures are followed.

Documents or part of documents can be electronically modified before they are committed to the optical storage. The content of an image stored on WORM optical disks cannot be altered, but reference to an image can be deleted from the file directory and reference to a new image substituted. Procedures and safeguards should be established to control the process to ensure the detection of modifications or alterations of images and corrections to the file directory.

A comprehensive index is essential. Documents that have been captured on WORM optical disk but are inadequately indexed will be effectively irretrievable. See also **4.2.**

3.2 Procedures

The organization should authorize a policy for the, capture, storage and management of records on optical storage media. It should issue written procedures for implementing that policy. The procedures, certificates and related documents should be stored in a safe place. The written procedures should include information about:

a) the types of record to be stored;

b) procedures for access and access levels;

c) procedures for scanning;

d) procedures for indexing;

e) procedures for quality control;

f) procedures for retrieval and printing;

g) procedures for certification;

h) procedures for destruction of originals and for recording destruction;

i) procedures for storage and retention;

j) procedures for making backups of duplicates of an optical disk or index information;

k) procedures for ensuring the correct functioning and operation of the system;

l) upgrades, software changes, repairs or alterations to system components or equipment systems, including backup systems;

m) procedures for training of staff to operate the system to authorized levels of operation;

n) procedures for internal or external audit;

o) authorization for issue, amendment and operation of procedures.

The organization's policy should be reviewed periodically to take account of any changes in legislation, technology or other relevant matters. Details of the review and any change made should be recorded.

All procedures should be regularly audited and audit results recorded so that they may be made available, if required, in establishing legal admissibility.

Any change made to policy or procedures should be notified to relevant personnel by means of amended documents and any superseded document withdrawn.

A copy of each version of the policy, procedures, and audit results should be retained as long as the images recorded during their relevance.

3.3 Certificates

3.3.1 General

The procedures recommended in **3.2** should include some or all of the example certificates given in **3.3.2** to **3.3.5**, to be completed at appropriate stages depending on the needs of the organization. Certificates should be kept for the same length of time as the documents they certify, either in their original form as hard copy or on WORM optical disk.

3.3.2 Authorization certificate

Before capture an authorization certificate giving approval for conversion should be completed.

3.3.3 Operator's certificate

After a batch of documents has been captured, the operator should complete a certificate giving operator's identification, date of scanning and indexing details.

The certificate need not be completed if the system automatically records the required information as part of the internal audit trail. See also **4.7.4**.

3.3.4 Certificate of acceptance

After captured images have been checked, a certificate of acceptance may be completed, stating that the images are true and complete representation of the documents captured. If a certificate applies to a batch of documents, the number of images and the number of documents should be stated. On retrieval of images, a certificate of acceptance may also be completed, stating that the paper copy is a true copy of the electronic image held on WORM optical disk. See also **4.3**.

3.3.5 Certificate of destruction

After the accuracy of captured images has been confirmed, a destruction certificate should be issued to allow the destruction of the originals. See also **4.9**.

3.4 Bureaux

The principles that apply to the owners of documents apply equally to bureaux. If an organization employs a bureau to record documents on optical storage media, the organization should satisfy itself that the bureau's procedures will provide security for the documents and are adequate for certification, indexing and input. The person responsible for appointing the bureau should examine the bureau's procedures and confirm in writing that they are satisfactory. The bureau's procedures should be reviewed from time to time and its operations inspected regularly. In these circumstances, information input by a bureau should have the same status as information input in-house.

4 General recommendations

4.1 Document preparation

The organization should ensure that hard-copy documents produced within the organization will be of a quality to produce a legible image after scanning. Documents, whether produced within or outside the organization, that are torn or crumpled may need repair before they are scanned, but should not be altered or retouched to improve legibility, because that might affect integrity.

4.2 Referencing and retrieval

Stored information should be arranged, identified and indexed in accordance with a system that facilitates the retrieval of a particular document or series of documents.