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**Information technology — Automatic  
identification and data capture  
techniques — Optical Character  
Recognition (OCR) quality testing**

*Technologies de l'information — Techniques automatiques  
d'identification et de capture des données — Essais de qualité des  
caractères pour reconnaissance optique*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

The committee responsible for this document is ISO/JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

## Introduction

For the inspection of ID documents, i.e. MRTDs (Machine Readable Travel Documents) according to ISO/IEC 7501 (all parts)/ICAO Doc 9303 (all parts) and driving licences according to ISO/IEC 18013 (all parts), a reliable and ergonomic document inspection technology is essential. Considering RFID interoperability, strong improvement has been reached introducing mechanisms for interoperability evaluation and testing of MRTDs and reader devices. Similar standards for optical reading would improve the reliability of OCR. This is especially important because OCR of the document's MRZ (Machine Readable Zone) is essential for accessing BAC (Basic Access Control) and/or SAC (Supplementary Access Control) protected passports.

Thus, reliable OCR makes the performance of automated border control systems, as well as of many other applications, more predictable. Furthermore, the evaluation of document reader products can be done much easier. This standardization project defines test methods to evaluate OCR document quality. Furthermore, it defines requirements ensuring the compliance to the applicable OCR standards. The project applies experiences from other domains such as bar code reading and possibly other test methods for OCR. Where conflicts in the specification work between MRTDs and driving licenses may arise, satisfying the definitions for MRTDs is given preference.



# Information technology — Automatic identification and data capture techniques — Optical Character Recognition (OCR) quality testing

## 1 Scope

This document

- specifies the methodology for the measurement of specific attributes of OCR-B character strings,
- defines a method for evaluating these measurements and deriving an overall assessment of character string quality,
- defines a reference decode algorithm for OCR-B, and
- gives information on possible causes of deviation from optimum grades to assist users in taking appropriate corrective action.

This document applies to OCR-B as defined in ISO 1073-2, but its methodology can be applied partially or wholly to other OCR fonts.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.1

#### **binarized image**

binary (black/white) image created by applying the global threshold to the *pixel* (3.5) values in the reference grey-scale image

### 3.2

#### **document reference edge**

physical (i.e. mechanical) end of the surface with the MRZ whose position is determined by putting a black background under the surface with the MRZ and sliding the document up against a physical stop

### 3.3

#### **inspection area**

rectangular area which contains the entire *symbol* (3.11) to be tested inclusive of its quiet zones

### 3.4

#### **character outline limits**

outlines of an ideal printed image of a character

Note 1 to entry: This is a qualitative evaluation utilized in ISO 1831 that is replaced in this document with SWT.