TC 97

International Standard ISO 7501

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Identification cards — Machine readable passport

Cartes d'identification — Passeport lisible par machine

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7501 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

Identification cards — Machine readable passport

0 Introduction

This International Standard is one of a series of identification card standards developed for international interchange.

It conforms in substance to the specifications published by the International Civil Aviation Organization (ICAO) (document 9303).

The Council of Europe, in their resolution (77)26 on establishment and harmonization of national identity cards, were guided by the work of ICAO in this field.

1 Scope and field of application

This International Standard specifies requirements for and dimensions of a Machine Readable Passport (MRP) containing data on its holder required at country border inspection. It is intended both for visual reading and for optical, edge guided machine reading. It includes coded representations of nationality and provisions have been made for the maintenance of these codes.

2 References

ISO 1073/2, *Alphanumeric character sets for optical recognition — Part 2: Character set OCR-B — Shapes and dimensions of the printed image.*

ISO 1831, *Printing specifications for optical character recognition.*

ISO 2014, *Writing of calendar dates in all-numeric form.*

ISO 2894, *Embossed credit cards — Specifications, numbering system and registration procedure.*

ISO 3166, *Codes for the representation of names of countries.*

ISO 7810, *Identification cards — Physical characteristics.* [1)]

3 Definition

For the purpose of this International Standard the following definition applies:

machine readable passport (MRP): A document fulfilling the requirements of a passport, intended both for visual and machine reading.

NOTE — It may be a separate document or form an integral part of a booklet for endorsement.

4 Physical properties

While recognizing that the issuing states have freedom in use of material, the MRP shall, in normal use throughout its period of validity, meet the following requirements:

4.1 Deformation

The MRP shall be of such nature that deformation due to normal use (bends, not creases) can be reduced to flatness by the reading device without impairing the use of the MRP or the functioning of the reader.

4.2 Toxicity

See ISO 2894 (sub-clause 4.6.3).

4.3 Resistance to chemicals

See ISO 2894 (sub-clause 4.6.4).

4.4 Temperature stability

The MRP shall remain machine readable at operating temperatures ranging from −10 °C to +50 °C. The MRP should not lose its reliability after being stored at temperatures ranging from −35 °C to +80 °C.

4.5 Humidity

See ISO 2894 (sub-clause 4.6.6).

1) At present at the stage of draft.

4.6 Ultra-violet light

See ISO 2894 (sub-clause 4.6.7).

4.7 Security aspects

The following points shall be observed in the production of the MRP:

a) Alteration: Any attempt to alter a genuine MRP in any way shall result in its virtual destruction or render such alteration clearly manifest to the eye; it might also be detectable by the mechanical or automated processes entailed in its scrutiny.

b) Counterfeit production: Any attempt to create counterfeit MRPs which would be visually acceptable and able to pass automated inspection shall be rendered liable to detection by constructing the MRPs in such a way that a high degree of technical expertise is involved in their production and that the production equipment shall not be readily available.

c) Card material: The material(s) required for production of MRPs shall be difficult to acquire for potential criminal elements.

Any security feature incorporated in the MRP shall not interfere with accurate machine reading.

5 Dimensions

The MRP shall be of the nominal size ID 3 as specified in ISO 7810 with the following tolerances:

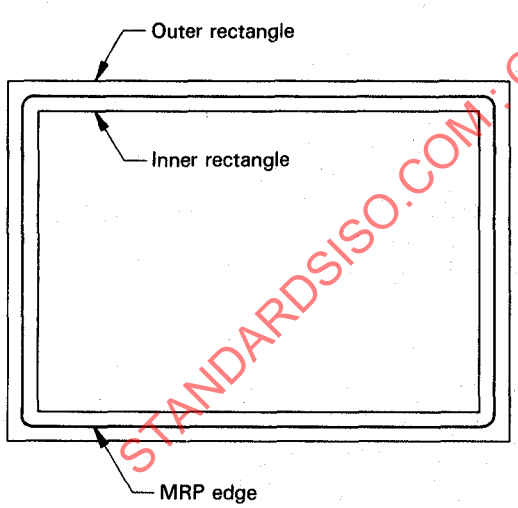


Figure 1 — MRP dimensions

a) The edges of the MRP shall be within the area between the following concentric rectangles:

Inner rectangle: 87,8 mm × 124,8 mm (3.457 in × 4.913 in)

Outer rectangle: 88,2 mm × 125,2 mm (3.472 in × 4.929 in)

The above measurements apply to a free standing MRP. When an MRP is integrated in a passport booklet, the top of the MRP may be extended for binding purposes.

b) The thickness of the MRP shall be

0,25 mm min. (0.01 in min.)

0,9 mm max. (0.035 in max.)*

c) For an individual MRP, the thickness of the area within the machine readable zone shall not vary by more than 0,1 mm (0.004 in).

6 Data content

6.1 Field names

The field names on the MRP shall appear in the language(s) of the issuing state and in English or French or both. Where a field is not utilized, the field name shall not appear on the MRP.

6.2 Data element directory

The MRP shall contain the data elements in the following directory.

Column 1 contains for each data element a reference field number identifying the concept described in column 3. It corresponds to the reference number for the fields in the layout in figure 2.

Column 2 contains the names of the data elements in the language concerned.

Column 3 contains the concepts of the data elements.

Column 4 contains specifications for the representations of the data items to be entered on the MRP.

Legend for abbreviations used in column 4:

a = alphabetic characters (A to Z)
n = numeric characters (0 to 9)
s = space, punctuations and other special characters
an = alphabetic and numeric characters
as = alphabetic and special characters including space
ns = numeric and special characters including space
ans = alphabetic, numeric and special characters including space
3 = fixed length of 3 characters
..10 = length up to 10 characters
.. = length undefined
A = see annex A.

* ICAO (document 9303) limits the maximum thickness to 0,635 mm (0.025 in). It has however been shown that it is technically permissible to increase the thickness as specified in this International Standard.

Table 1

Field No.	Name	Description	Representation
1	2	3	4
01	Issuing state (this text is not printed on the document)	The state responsible for the MRP issue	as . . Name of state normally preprinted in type font at discretion of the issuing state.
02	Name of document (this text is not printed on the document)	A name describing the function of the document	a . . The word for passport in the language(s) of the state of issue plus either PASSPORT or PASSEPORT, in type font at the discretion of the state of issue.
03	Type of document	A short form of element 02	Capital letter P
04	Issuing state, code	A coded representation of the name of the state which has issued the MRP	a 3 ISO 3166 Alpha-3
05	Passport No.	The number of the MRP given by the issuing state	ans . .9
06	Surname	Family name of holder (see the note)	as . .33 In cases where composite names cannot be shown in full due to space limitations, the predominant one used by the holder shall be inserted.
07	Given name(s)	Forename(s) given to holder	as . .33 The predominant name(s) used by the holder in full. Other names may be substituted by initials.
08	Nationality	The nationality of the holder as noted by the issuing state	as . .33 In the language(s) of the state of issue.
09	Date of birth	Date of birth of holder as noted by the issuing state	ans 15 A
10	Personal No. (optional element)	A number given to the holder by the issuing state	ans . .14
11	Sex	Sex of MRP holder	a 1 F = Female M = Male
12	Place of birth	Place of birth of MRP holder	as . .27 Name of place of birth. When the MRP is issued to a person whose place of birth was outside the state issuing the document and it is desired that the country of birth be indicated, the ISO 3166 Alpha-3 code shall be used.
13	Date of issue	Date of issue of the MRP	ans 15 A
14	Date of expiry	Date of expiry of the MRP	ans 15 A
15	Authority	Authority having issued the MRP	Printed or stamped, inside a 12 mm × 35 mm (0.47 in × 1.38 in) frame, at the discretion of the issuing state.
16	Holder's signature	Signature as written by holder	The signature shall be inside a 12 mm × 51 mm (0.47 in × 2 in) frame.
17	Photo of holder	A photo showing the face of the holder	The photo shall fill the 45 mm × 35 mm (1.77 in × 1.38 in) area reserved. The face length from chin to crown of head shall be between 25 and 35 mm (0.98 to 1.38 in).
18	Machine readable data	Data elements 03 to 11 and 14 in machine readable form	See clause 7 and figures 1, 2 and 3.

NOTE — If the document holder has a single name, it shall be placed in the surname field (06) and the given name field (07) preferably contain XXX.

7 Machine readable data

The machine readable data shall be printed in OCR-B type font size 1, constant strokewidth, as specified in clause 8 and shall be placed in two lines in the machine readable zone (field 18) as specified in clause 9.

The outer limits of the first and last character in each of the two lines shall be at least 6 mm (0.236 in) from the nearest vertical edge of the MRP.

The content of the data elements 03 to 11 and 14 in clause 6 appear from left to right in the following sequence in two lines on the MRP.

7.1 Data structure of the upper line

Table 2

Character positions	Field No.	Data element name	Representation (see 6.2, legend to column 4)
1 to 2	03	Type of card	Capital letter P and a single character <.
3 to 5	04	Issuing state	a 3 ISO 3166 Alpha-3
6 to	06	Surname	as . . Double or composite names shall be separated by a single character <. Any special characters, including spaces, in the surname as shown in the zone for visual inspection shall be replaced by the character <.
		Surname separator	Two characters < (<<)
	07	Given name(s)	as . . If more than one given name and/or initials are used, they shall be separated by a single character <. Any special characters including spaces in the given names and/or between initials as shown in the zone for visual inspection shall be replaced by the character <.
to 44		Filler	Character < repeated up to position 44 as required.

7.2 Data structure of the lower line

Table 3

Character positions	Field No.	Data element name	Representation (see 6.2, legend to column 4)
1 to 9	05	Passport No.	ans . .9 Any special characters including space in the passport number as shown in the zone for visual inspection shall be replaced by character <. The number shall be followed by character < repeated up to position 9 as required.
10		Check digit	n 1 See annex B
11 to 13	08	Nationality	a 3 See clause 10 and annex D
14 to 19	09	Date of birth	n 6 YYMMDD see annex A
20		Check digit	n 1 See annex B
21	11	Sex	a 1 F = Female; M = Male
22 to 27	14	Date of expiry	n 6 YYMMDD see annex A
28		Check digit	n 1 See annex B
29 to 42	10	Personal No.	ans . .14 Any special characters including space in the personal number as shown in the zone for visual inspection shall be replaced by the character <. The number shall be followed by character < repeated up to position 42 as required.
43		Check digit	n 1 See annex B
44		Check digit for all characters of machine readable data in positions 1 to 10, 14 to 20, 22 to 43	n 1 See annex B

8 Character sets and fonts

8.1 Captions

Latin alphabet captions in fields 03 through 16, indicated in clause 9, shall be printed in a clear, linear type font in a size of 5,5 to 6,5 typographical points.

The language of the state of issue, when printed in Latin alphabet characters, shall be in a straight font and the other language should preferably be in *italics*.

8.2 Entered data, zone for visual inspection

Fields 01, 02, 06, 07 and 15

The full character set shown in C.1 and C.2 of annex C shall be used for Latin alphabet entries. Type font, upper/lower case and size may be selected at the discretion of the issuing state.

Fields 03, 04, 05 and 08 through 14

The full character set shown in C.1 and C.2 of annex C shall be used for Latin alphabet entries. OCR-B, size 1, constant strokewidth characters shall be used with a width spacing of 2,54 mm (0.1 in) (see ISO 1073/2).

8.3 Entered data, machine readable zone

Field 18

The machine readable OCR-B, size 1, constant strokewidth characters shown in C.1 of annex C shall be used with a width spacing of 2,54 mm (0.1 in) (see ISO 1073/2).

If the letters Ä Å Æ IJ Ñ Ö Ø Ü in C.2 of annex C are used in the zone for visual inspection, they shall be translitterated as follows when used in the machine readable zone:

AE, AA, AE, IJ, N, OE, OE, UE

8.4 Characteristics of the machine readable zone

See ISO 1831.

9 Layout

The layout of the front side of the MRP shall be as specified in figures 2 and 3. The borderlines of the fields are shown in order to indicate the size of each field but should preferably be omitted on the actual MRPs. The numbers within circles correspond to the field numbers in the data element directory in clause 6.

If field 18 is alternatively placed on the back of the MRP it shall be in the same position relative to the reference edge.

In figure 3 the positioning of the characters are indicated by character centre-lines.

An example of a personalized MRP is shown in figure 4.

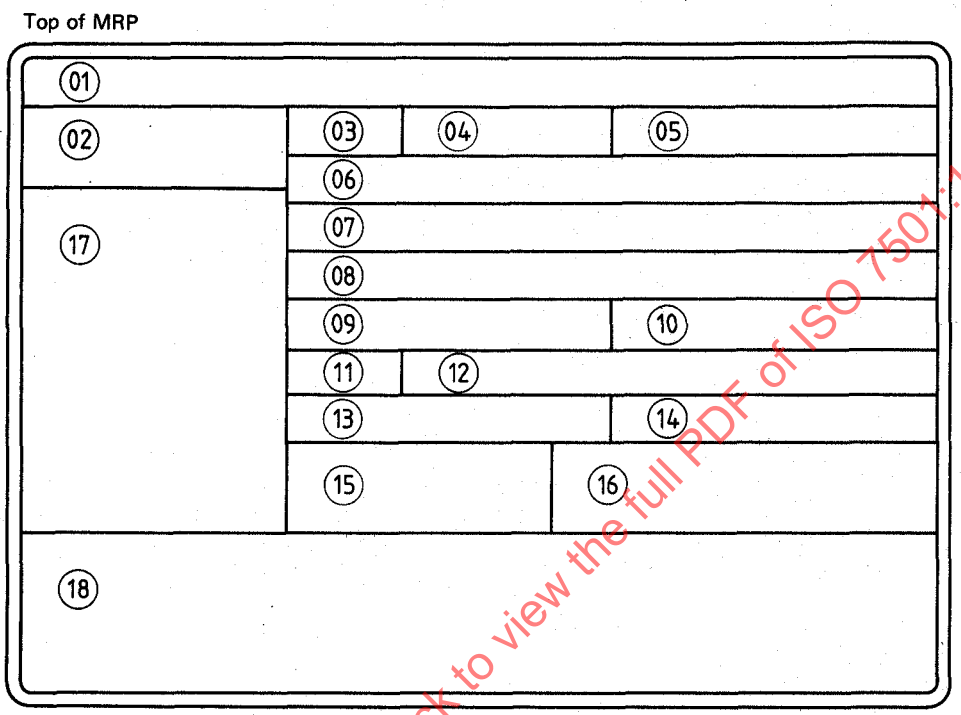
10 Nationality codes

Annex D contains three-letter codes for nationality derived from, but not identical to ISO 3166. When required by a country and upon request to ISO, codes for type of citizenship will be issued by a Maintenance Agency and included in the list.

10.1 Maintenance Agency

In order to handle requests for additions, deletions or changes in the list of nationality codes, a Maintenance Agency may be established in accordance with part 1 of the ISO Directives.*

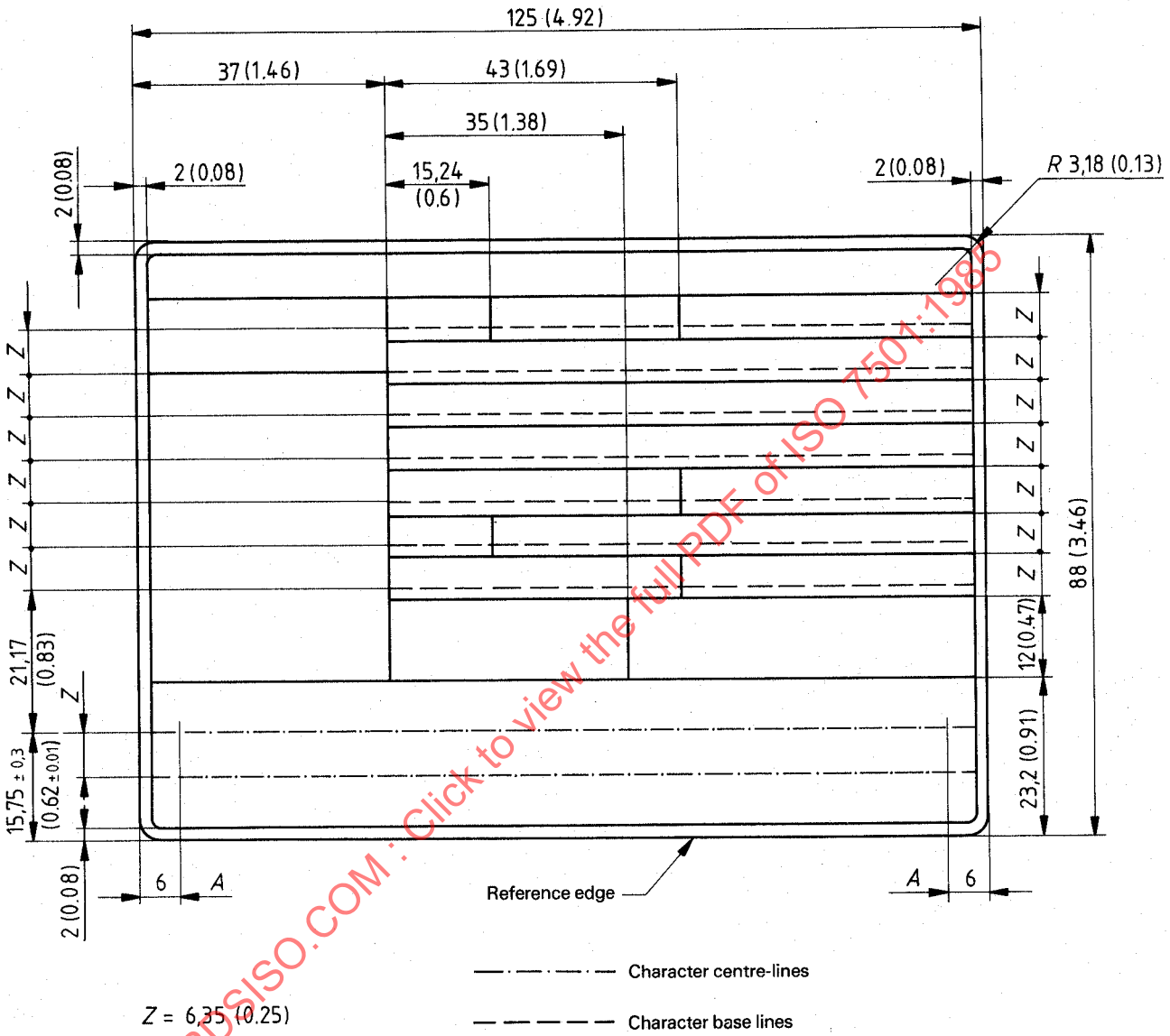
* Information concerning the maintenance agency may be obtained on request to the Secretary General, ISO Central Secretariat, Case postale 56, CH-1211 Genève 20, Switzerland, quoting the number of this International Standard.



Numbers within circles correspond to the field numbers in clause 6.

Figure 2 — Layout of front side of Machine Readable Passport (MRP): position of fields

Nominal dimensions in millimetres
(inch dimensions in parentheses)



A: As specified in ISO 1831 there shall be no text outside these lines in the machine readable zone.

There shall be no print in the 2 mm margins.

It is recommended that the borderlines of the fields be omitted on the actual MRP.

Figure 3 — Layout of front side of Machine Readable Passport (MRP): position of fields and characters

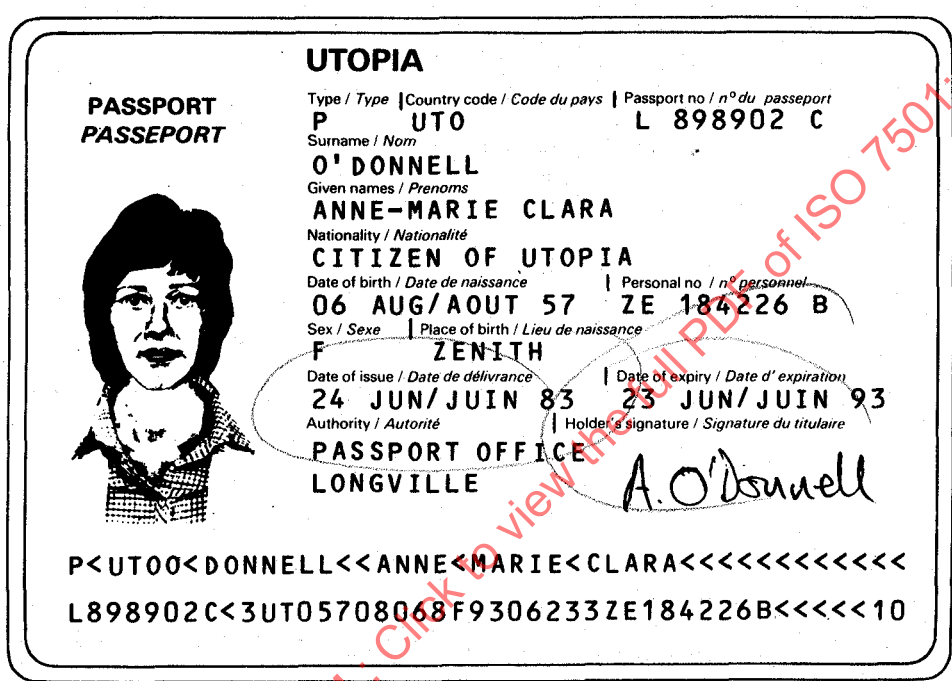


Figure 4 — Example of a personalized MRP

Annex A

Writing of dates

(This annex forms part of the standard.)

A.1 Dates in fields for visual inspection

Such dates on the MRP shall be entered in accordance with the Gregorian calendar as follows:

a) Days shall be shown by a two-digit number, i.e. the dates from one to nine shall be preceded by a zero; this number shall be followed by a blank space.

b) The name of the month in the language of the state of issue or the abbreviation thereof up to four character positions followed by an oblique character (/).

c) The English or French version of the name of the month or the abbreviations thereof up to four character positions as shown in table 4 shall follow the oblique character.

Table 4

Month	English	French
January	Jan	Jan
February	Feb	Fev
March	Mar	Mars
April	Apr	Avr
May	May	Mai
June	Jun	Juin
July	Jul	Juil
August	Aug	Aout
September	Sep	Sept
October	Oct	Oct
November	Nov	Nov
December	Dec	Dec

d) The year shall be shown by the last two digits and be preceded by a blank space.

As an example, the date of birth on a MRP issued in Italian with French translation of the month would appear as follows:

12*b*LUG*b*/JUIL*b*42 *b* = blank space

12 LUG /JUIL 42

A.2 Dates in the machine-readable field

Such dates on the MRP shall, in accordance with the principle in ISO 2014, be shown as a six digit number consisting of the last two digits for the year (YY) followed by two digits for the number of the month (MM) and by two digits for the day (DD).

The structure is YYMMDD.

The above example will in this form be shown as:

420712

NOTE — If the birthdate is unknown it is recommended to use

— in the zone for visual inspection: Number 00 for day, and alphabetic OOO for month;

— in the machine readable zone: Number 0000 for month and day.