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**Information technology — Personal  
identification**

Part 3:

**Access control, authentication and  
integrity validation**

**AMENDMENT 1: Scanning area identifier —  
Optional machine readable zone**

*Technologies de l'information — Identification des personnes — Permis  
de conduire conforme à l'ISO —*

*Partie 3: Contrôle d'accès, authentification et validation d'intégrité*

*AMENDEMENT 1: Identifiant de zone de lecture — Zone optionnelle  
lisible par machine*



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## Foreword

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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.

Amendment 1 to ISO/IEC 18013-3:2009 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

It describes the optional 1 line MRZ as a further machine readable technology option to the scanning area identifier.

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# Information technology — Personal identification

## Part 3:

## Access control, authentication and integrity validation

### AMENDMENT 1: Scanning area identifier — Optional machine readable zone

#### Page 6, Abbreviated terms

Insert the following abbreviations:

|      |                                  |
|------|----------------------------------|
| MRTD | machine readable travel document |
| MRZ  | machine readable zone            |

#### Page 25

Insert the following clause after Figure 12:

#### 8.3.2.5 SAI consisting of an IDL MRZ

##### 8.3.2.5.1 General

This mechanism is a 1 line MRZ and is used with the non-match alert or BAP mechanisms, which collectively are applicable to SICs, 2D barcode, magnetic stripe and optical memory (see 8.4 and 8.5).

The IDL MRZ differs from the manner in which an input string is identified in 8.3 in that its position is fixed and consequently does not require one or more graphical elements that demarcate the input string as an SAI.

The data elements shall be printed in machine readable form, in the MRZ, beginning with the left most character position in each field in the sequence indicated in the data structure specifications for the IDL MRZ.

**NOTE** The content of the IDL MRZ should not be confused with data elements in the passport MRZ.

Check digits are used within the machine readable zone to provide verification that the entered data are correctly interpreted.

The presence of the IDL MRZ is identified as follows:

- a) If SIC access is required and the access conditions are unsatisfied (i.e. BAP is in place), the reader searches for the IDL MRZ on the IDL.
- b) If access to DG12 is available, BAP is not applicable and the non-match alert mechanism is present, DG12 may confirm the existence of the IDL MRZ, alternatively, the reader searches for the IDL MRZ on the IDL.

Not more than one IDL MRZ shall be present on a single IDL.

The reference string shall be encoded in accordance with ISO/IEC 8859-1.

The IDL MRZ may be located on the portrait side or the non-portrait side of the IDL, except for the case where the reference string for the non-match alert is stored in a bar code. In such case the IDL MRZ shall not be located on the same side as the barcode.

Figure Amd.1-1 shows the location of the 1 line MRZ at the bottom of the IDL, the nominal dimensions and position of the IDL MRZ data.

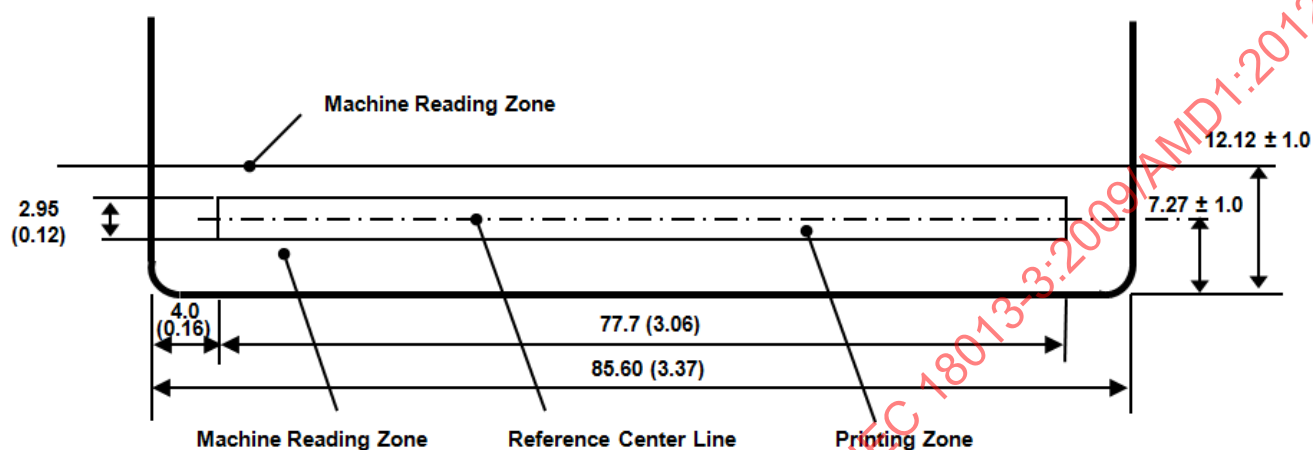


Figure Amd.1-1 — Location of 1 line MRZ at the bottom of the IDL (not to scale)

#### 8.3.2.5.2 Printing

The position of the left edge of the first character of the OCR line shall be  $4.0 \pm 1.0$  mm ( $0.16 \pm 0.04$  in) from the left edge of the IDL. The reference centre line for the OCR line shall be  $7.27 \pm 1.0$  mm ( $0.29 \pm 0.04$  in) from the bottom edge of the IDL. The OCR line shall not exceed the printing zone length of  $77.7 \pm 1.0$  mm ( $3.06 \pm 0.04$  in). No other printing in the B900 infrared band defined in ISO 1831 may appear in the machine reading zone within  $12.12 \pm 1.0$  mm ( $0.48 \pm 0.04$  in) from the bottom edge of the IDL.

Machine readable data shall be printed in OCR-B type font, size 1, constant stroke width. The MRZ shall be printed with a horizontal printing density of nominally 10 characters per 25.4 mm.

The text shall be limited to the set of ICAO MRZ characters, i.e.: 0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z <, excluding the space character.

The IDL MRZ shall be adapted for reading in the B900 infrared band defined in ISO 1831. Under such illumination the printing background and any overlays will backscatter light in a homogeneous way (i.e. the IDL MRZ shall not be obstructed by an optically variable device, local deviations in properties, security features, or surface gloss exceeding natural transparent overlay gloss that will interfere with readability). The brightness of the printing background (including the effects of overlays) will not be less than 40% compared to an ideal white surface under the same illumination.

The contrast ratio between character lines and the background shall be a minimum of 4:1. Any reflective layer covering the SAI area shall not further deteriorate this contrast value when illuminated under angles of incidence up to 45 degrees and looked at under angles more than 10 degrees outside of the nominal glance angle.

### 8.3.2.5.3 Use of the IDL MRZ as a BAP input string

The IDL MRZ can be used for establishing BAP as specified in 8.5. The input string shall be composed of characters 2 to 29 of the IDL MRZ.

The IDL MRZ shall contain the following elements:

**Table Amd.1-1 — IDL MRZ data elements**

| IDL MRZ character positions                                                                      | Data element       | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                           | Number of Characters |
|--------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1                                                                                                | Identifier         | The first character shall be "D".                                                                                                                                                                                                                                                                                                                                                                                                                       | 1                    |
| 2                                                                                                | Configuration      | The second character shall designate the configuration as follows:<br>"1" for IDL SIC protected with BAP configuration 1<br>"2" for IDL SIC protected with BAP configuration 2<br>"3" for IDL SIC protected with BAP configuration 3<br>"4" for IDL SIC protected with BAP configuration 4<br>"N" for IDL SIC protected with non-match alert<br>"<" for an MRZ does not contain a reference string<br>Any other characters are reserved for future use. | 1                    |
| 3 to 29                                                                                          | Discretionary data | The contents of this field are to be determined at the discretion of the Issuing Authority. Unused character positions shall be completed with filler characters (<) repeated up to position 29 as required.                                                                                                                                                                                                                                            | 27                   |
| 30                                                                                               | Check digit        | The check digit allows verification of all the data in the OCR line.<br><br>Check digit is calculated over the characters in positions 1-29 according to requirements set out below                                                                                                                                                                                                                                                                     | 1                    |
| NOTE The IA should ensure that the entropy of the input string is commensurate with its purpose. |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |

### 8.3.2.5.4 Check digit calculation

The IDL MRZ check digit shall be calculated on modulus 10 with a continuously repetitive weighting of 731 731 ..., as follows:

**Step 1:** Going from left to right, multiply each digit of the pertinent numerical data element by the weighting figure appearing in the corresponding sequential position.

**Step 2:** Add the products of each multiplication.

**Step 3:** Divide the sum by 10 (the modulus).

**Step 4:** The remainder shall be the check digit.

For data elements in which not all available character positions are occupied, the symbol < shall be used to complete vacant positions and shall be given the value of zero for the purpose of calculating the check digit.

When the check digit calculation is applied to data elements containing alphabetic characters, the characters A to Z shall have the values 10 to 35 consecutively, as follows:

**Table Amd.1-2 — Check digit calculation**

|           |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Character | A  | B  | C  | D  | E  | F  | G  | H  | I  | J  | K  | L  | M  |
| Value     | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |

|           |    |    |    |    |    |    |    |    |    |    |    |    |   |
|-----------|----|----|----|----|----|----|----|----|----|----|----|----|---|
| Character | N  | O  | P  | Q  | R  | S  | U  | V  | W  | X  | Y  | Z  | < |
| Value     | 23 | 24 | 25 | 26 | 27 | 28 | 30 | 31 | 32 | 33 | 34 | 35 | 0 |

### EXAMPLE

Using an IDL with the following elements in the IDL MRZ:

**Table Amd.1-3 — Example IDL MRZ data elements**

| IDL MRZ element    | Value                         | Meaning                                                                      |
|--------------------|-------------------------------|------------------------------------------------------------------------------|
| Identifier         | "D"                           | In accordance with this standard                                             |
| Configuration      | "1"                           | BAP configuration 1                                                          |
| Discretionary data | "23T09PJ3Y8478FSD <<<<<<<<<<" | 16 random characters followed by special characters to fill vacant positions |
| Check digit        | "?"                           | Check digit to be calculated over characters 1 to 29                         |

Check digit is to be calculated over the following data: D123T09PJ3Y8478FSD<<<<<<<<

**Step 1: Multiplication:**

[illegible]

**Step 2: Sum of products:**

$$91 + 3 + 2 + 21 + 87 + 0 + 63 + 75 + 19 + 21 + 102 + 8 + 28 + 21 + 8 + 105 + 84 + 13 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 + 0 = 751$$

**Step 3:** Division by modulus:  $\frac{751}{10} = 75$ , remainder 1

**Step 4:** Check digit is the remainder, 1. The resulting MRZ including check digit shall be written as:

D123T09PJ3Y8478FSD&lt;&lt;&lt;&lt;&lt;&lt;&lt;&lt;&lt;1

**Table Amd.1-4 — Example IDL MRZ data elements and check digit**

| IDL MRZ element    | Value                        | Meaning                                                                      |
|--------------------|------------------------------|------------------------------------------------------------------------------|
| Identifier         | "D"                          | In accordance with this standard                                             |
| Configuration      | "1"                          | BAP configuration 1                                                          |
| Discretionary data | "23T09PJ3Y8478FSD<<<<<<<<<<" | 16 random characters followed by special characters to fill vacant positions |
| Check digit        | "1"                          | Check digit calculated over characters 1 to 29                               |

The corresponding hex value of the above input string (Configuration and Discretionary data) encoded in accordance with ISO/IEC 8859-1 is:

'31 32 33 54 30 39 50 4A 33 59 38 34 37 38 46 53 44 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C'

### 8.3.2.5.5 Use of IDL MRZ for non-match alert

The IDL MRZ can be used with the non-match alert mechanism as described in 8.4.

In order to describe such use in DG12, byte 1 of the `SAI_inputmethod` field shall be assigned a value of '41'. The four most significant bits (upper nibble) of this byte identifies the IDL MRZ as the input method. The four least significant bits (lower nibble) of byte 1 is assigned in accordance with Table 6.

If byte 2 of the `SAI_inputmethod` is present, it shall have the value 'FF'.

If the presence of the non-match alert mechanism is indicated in the EF.COM file, and if the optional parameters are provided, the `version` field shall be set to v1(1) for this version of the non-match alert mechanism.

EXAMPLE Figure Amd.1-2

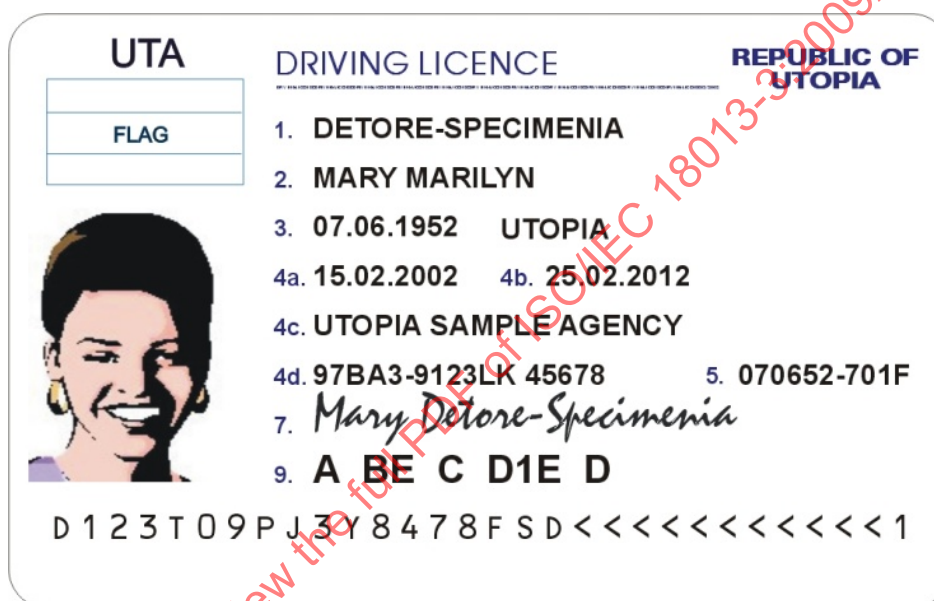


Figure Amd.1-2 — IDL MRZ on portrait side of IDL designated as input string (not to scale)