



INTERNATIONAL STANDARD ISO/IEC 19794-5:2005
TECHNICAL CORRIGENDUM 2

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Information technology — Biometric data interchange formats —

Part 5: Face image data

TECHNICAL CORRIGENDUM 2

Technologies de l'information — Formats d'échange de données biométriques —

Partie 5: Données d'image de la face

RECTIFICATIF TECHNIQUE 2

Technical Corrigendum 2 to ISO/IEC 19794-5:2005 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

Page 23, 7.2.2

Replace 7.2.2 with the following:

7.2.2 Pose

Pose is known to strongly affect performance of automated face recognition systems. Thus, the full-face frontal pose shall be used. Rotation of the head shall be less than $\pm 5^\circ$ from frontal in pitch and yaw (see 5.5.8). Pose variations that lead to an in-plane rotation of the head can be more easily compensated by automated face recognition systems. Therefore, the rotation of the head shall be less than $\pm 8^\circ$ from frontal in roll (see 5.5.8). Figure Cor.1-1 shows an example of $\pm 8^\circ$ rotation in roll.

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Figure Cor.1-1 — Sample images with +8° (left) and –8° (right) rotation in roll

The best practice recommendation as outlined in A.2.2 is that the rotation of the head should be less than $\pm 5^\circ$ from frontal in roll.

This constraint refers to the pose of the subject associated with the face image format data for all applications that call for this format to be used.

Pages 27–29, 8.3.1 to 8.3.6

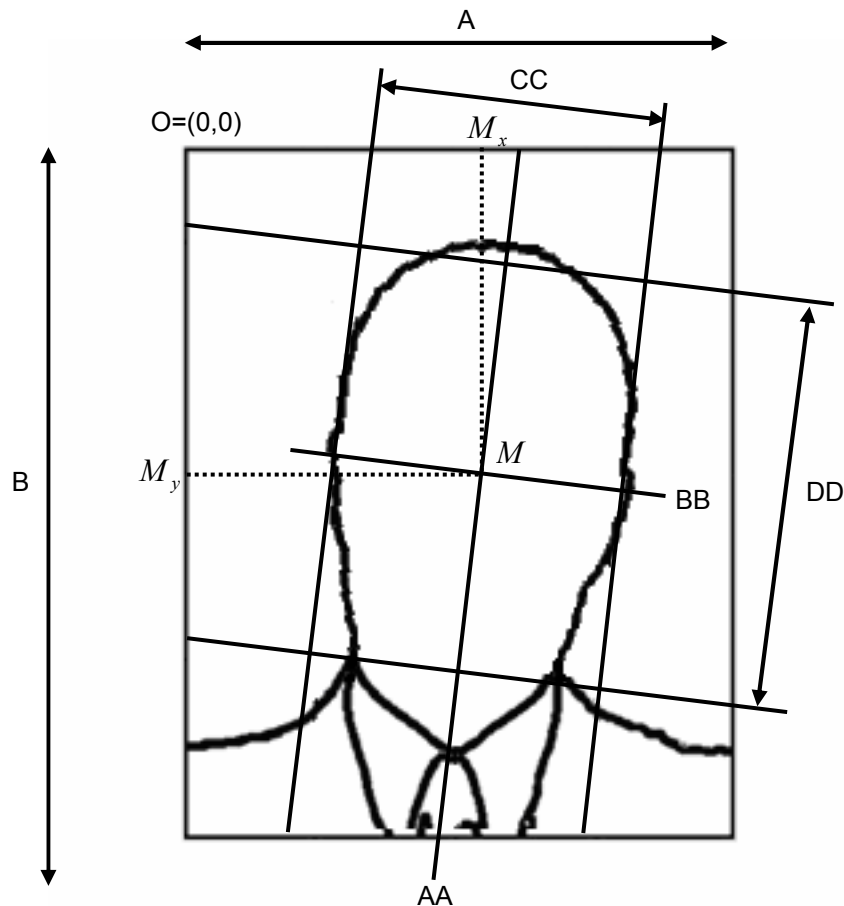
Replace 8.3.1 to 8.3.6 with the following:

8.3.1 Introduction

The *minimum* relative dimensions of the full image with respect to the face are specified in 8.3.2 to 8.3.6. The requirements of 8.3.2 to 8.3.6 can be met by images taken in both portrait and landscape mode. Figure 9 shows a portrait image and head outline to display dimensions A, B, BB, CC, and DD which are referenced in 8.3.2 to 8.3.6. In addition to the requirements of 8.3.2 to 8.3.6, the face from chin to crown as defined in 8.3.5 and with the full width as defined in 8.3.4 shall be visible in the image.

Additional constraints on image and head dimensions for sizes appropriate specifically to travel documents are discussed in A.3.2.

Note that for digital images the normative requirements related to the minimum inter-eye distance as defined in 8.4.1 impose further requirements on the minimum head size. A.3.1.1 gives more information on the connection between photo resolution and the photographic requirements of 8.3.2 to 8.3.6.



NOTE This figure is a derivative of AAMVA document DL/ID-2000.

Figure 9 — Geometric characteristics of the full frontal face image

8.3.2 Horizontally centred face

The approximate horizontal midpoints of the mouth and of the bridge of the nose define the imaginary line AA (usually the symmetry axis of the face). Furthermore, the imaginary line BB is defined as the line through the centre of the left eye and the centre of the right eye. The intersection of AA and BB defines the point M as the centre of the face. The x-coordinate M_x of M shall be between 45 % and 55 % of the image width.

8.3.3 Vertical position of the face

The y-coordinate M_y of M shall be between 30 % and 50 % of the image height. A single exception is allowed for children under the age of 11 years, in which case the higher limit shall be modified to 60 % (i.e. the centre point of the head is allowed to be lower in the image for children under the age of 11). Note that the origin O of the coordinate system is in the upper left corner of the image.

8.3.4 Width of head

The width of a head is defined as the distance between the two imaginary lines parallel to the line AA; each imaginary line is drawn between the upper and lower lobes of each ear and shall be positioned where the external ear connects to the head. The head width is shown as length CC in Figure 9.

To ensure that the entire face is visible in the image, the head width (CC) shall be between 50 % and 75 % of the image width (A).

8.3.5 Length of head

The length of a head is defined as the distance between the base of the chin and the crown measured on the imaginary line AA. This is shown as length DD in Figure 9. The crown is defined as the top of the head ignoring any hair.

In order to assure that the entire face is visible in the image, the minimum image height shall be specified by requiring that the crown-to-chin portion (DD) of the full frontal image pose shall be between 60 % and 90 % of the vertical length of the image (B). A single exception is allowed for children under the age of 11 years, in which case the lower limit shall be modified to 50 %.

8.3.6 Summary of photographic requirements

Table 15 summarizes the photographic requirements for full frontal images specified in 8.3.1 to 8.3.5.

Table 15 — Summary of photographic requirements for full frontal images

Section	Definition	Requirements
8.3.1	General requirement	Head entirely visible in the image
8.3.2	Horizontal position of face	$0,45 A \leq M_x \leq 0,55 A$
8.3.3	Vertical position of face	$0,3 B \leq M_y \leq 0,5 B$
8.3.3	Vertical position of face (children under the age of 11)	$0,3 B \leq M_y \leq 0,6 B$
8.3.4	Width of head	$0,5 A \leq CC \leq 0,75 A$
8.3.5	Length of head	$0,6 B \leq DD \leq 0,9 B$
8.3.5	Length of head (children under the age of 11)	$0,5 B \leq DD \leq 0,9 B$

Figure Cor.1-2 shows a typical example of a passport image. The outer rectangle visualizes the maximum dimensions of the head based on the requirements in 8.3.4 and 8.3.5. Furthermore, the inner rectangle shows the minimum width and height dimensions of the head based on the image dimensions.

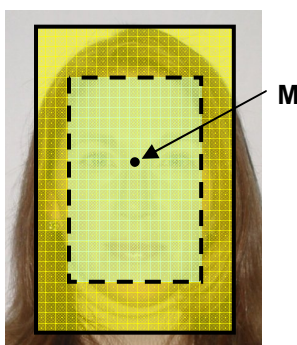


Figure Cor.1-2 — A sample image with the respective minimal and maximal head dimensions based on the image width and height