

---

---

**Information technology — Biometric  
sample quality —**

**Part 6:  
Iris image data**

*Technologies de l'information — Qualité d'échantillon biométrique —  
Partie 6: Image d'iris*



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

Page

<b>Foreword</b>	<b>v</b>
<b>Introduction</b>	<b>vi</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Conformance</b>	<b>1</b>
<b>3 Normative references</b>	<b>2</b>
<b>4 Terms and definitions</b>	<b>2</b>
<b>5 Acronyms and abbreviated terms</b>	<b>3</b>
<b>6 Iris image quality metrics</b>	<b>3</b>
6.1 General	3
6.2 Required iris image quality metrics computed from a single image	4
6.2.1 Usable iris area	4
6.2.2 Iris-sclera contrast	5
6.2.3 Iris-pupil contrast	6
6.2.4 Pupil boundary circularity	7
6.2.5 Grey scale utilisation	8
6.2.6 Iris radius	8
6.2.7 Pupil dilation	9
6.2.8 Iris pupil concentricity	9
6.2.9 Margin adequacy	10
6.2.10 Sharpness	12
6.3 Recommended iris image quality metrics computed from a single image	13
6.3.1 Frontal gaze-elevation	13
6.3.2 Frontal gaze-azimuth	13
6.3.3 Motion blur	15
6.4 Iris image quality metrics computed from two images	15
6.4.1 Common usable iris area	15
6.4.2 Dilation constancy	15
6.4.3 Illumination similarity	16
6.5 Unified (overall) quality score	16
6.5.1 General	16
6.5.2 Computational method	16
<b>7 Iris acquisition quality</b>	<b>17</b>
7.1 General	17
7.2 Dedicated illumination	17
7.2.1 Description	17
7.2.2 Units of measure	17
7.2.3 Computational method	18
7.2.4 Value range/threshold	18
7.3 Modulation transfer function	18
7.3.1 Description	18
7.3.2 Units of measure	18
7.3.3 Computational method	18
7.3.4 Value range/threshold	18
7.4 Spatial sampling rate	18
7.4.1 Description	18
7.4.2 Units of measure	19
7.4.3 Computational method	19
7.4.4 Value range/threshold	19
7.5 Optical distortion	19
7.6 Pixel aspect ratio	19
7.6.1 Description	19
7.6.2 Units of measure	19

7.6.3	Computational method.....	19
7.6.4	Value range/threshold.....	19
7.7	Sensor signal-to-noise ratio.....	19
7.7.1	Description.....	19
7.7.2	Units of measure.....	19
7.7.3	Computational method.....	20
7.7.4	Value range/threshold.....	20
<b>8</b>	<b>Iris image quality data record .....</b>	<b>20</b>
8.1	Binary encoding.....	20
8.2	XML encoding.....	22
<b>Annex A (normative) Conformance test assertions.....</b>		<b>24</b>
<b>Annex B (informative) Iris image quality .....</b>		<b>25</b>
<b>Bibliography .....</b>		<b>29</b>

## 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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 37, *Biometrics*.

ISO/IEC 29794 consists of the following parts, under the general title *Information technology — Biometric sample quality*:

- *Part 1: Framework*
- *Part 4: Finger image data*
- *Part 5: Face image data* (Technical Report)
- *Part 6: Iris image data*

ISO/IEC 29794 will be prepared to accommodate new, additional parts that address other modalities specified by ISO/IEC 19794, with part numbers and titles aligning appropriately.