
**Information technology — Advanced
image coding and evaluation —**

**Part 1:
Guidelines for image coding system
evaluation**

*Technologies de l'information — Codage d'image avancé et
évaluation —*

*Partie 1: Lignes directrices pour l'évaluation des systèmes de
codage d'image*





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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).

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For an explanation on the voluntary nature of standards, 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.

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A list of all parts in the ISO/IEC 29170 series can be found on the ISO website.

Introduction

This document provides a framework and best practices to evaluate image compression algorithms. This document provides a selection of evaluation tools that allow testing multiple features, including objective metric image quality, subjective metric image quality and codec algorithmic complexity. Which features of codecs should be tested and pass-fail criteria is beyond the scope of this document.

Information technology — Advanced image coding and evaluation —

Part 1: Guidelines for image coding system evaluation

1 Scope

This document recommends best practices for coding system evaluation of images and image sequences. This document defines a common vocabulary of terms for coding system evaluation and divides evaluation methods into three broad categories:

- a) subjective assessment;
- b) objective assessment;
- c) computational assessment.

In addition to these broad assessment categories, this document discusses special care that is given for coding unusual imagery, e.g. high dynamic range or high colour depth.

A fourth assessment category, hardware complexity, is often important for real-time or computationally complex applications; however, it is outside the scope of this document.

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 channel

one logical component of an image

Note 1 to entry: A channel may be a direct representation of one component from the bitstream, or may be generated by the application of a palette to a component from the bitstream.

[SOURCE: ISO/IEC 15444-1:2016, 3.17 – modified to move part of definition into a Note to entry]

3.2 codec coding system

system comprising a *compressor* (3.6), a *decompressor* (3.8) and the compressor's bitstream output is compatible with the decompressor's bitstream input