International Standard

ISO/IEC 15444-4

Information technology — JPEG 2000 image coding system —

Part 4: Conformance testing

Technologies de l'information — Système de codage d'images JPEG 2000 —

Partie 4: Tests de conformité

Fourth edition
2024-05

Reference number
ISO/IEC 15444-4:2024(en)

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Published in Switzerland

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This document was prepared by ITU-T (as ITU-T Rec T.803) and drafted in accordance with its editorial rules, in collaboration with Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This fourth edition cancels and replaces the third edition (ISO/IEC 15444-4:2021), which has been technically revised.

The main changes are as follows:

— the maximum allowable errors associated with compliance Class 1, for both Rec. ITU-T T.800 | ISO/IEC 15444-1 and Rec. ITU-T T.814 | ISO/IEC 15444-15 codestreams, have been relaxed in a few cases to ensure that well designed 16-bit fixed-point implementations of the inverse discrete wavelet transform should be able to pass all compliance tests for Class 1;

— two additional test codestreams have been added along with conformance bounds, to facilitate testing of inverse wavelet and component decorrelating transform accuracy;

— a number of codestreams and files conforming to Rec. ITU-T T.801 | ISO/IEC 15444-2 have been included for informative purposes only, to facilitate the development of decoders and file format readers that are able to support features beyond the core capabilities found in Rec. ITU-T T.800 | ISO/IEC 15444-1 and Rec. ITU-T T.814 | ISO/IEC 15444-15.

A list of all parts in the ISO/IEC 15444 series can be found on the ISO and IEC websites.

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INTERNATIONAL STANDARD
ITU-T RECOMMENDATION

Information technology – JPEG 2000 image coding system: Conformance testing

1 Scope

This Recommendation | International Standard[1] specifies the framework, concepts, methodology for testing, and criteria to be achieved to claim compliance to Rec. ITU-T T.800 | ISO/IEC 15444-1 or Rec. ITU-T T.814 | ISO/IEC 15444-15. It provides a framework for specifying abstract test suites (ATSs) and for defining the procedures to be followed during compliance testing.

This Recommendation | International Standard:

- specifies compliance testing procedures for encoding and decoding using Rec. ITU-T T.800 | ISO/IEC 15444-1 and Rec. ITU-T T.814 | ISO/IEC 15444-15;
- specifies codestreams, decoded images, and error metrics to be used with the testing procedures;
- specifies ATSs;
- provides guidance for creating an encoder compliance test

This Recommendation | International Standard does not include the following tests:

Acceptance testing: the process of determining whether an implementation satisfies acceptance criteria and enables the user to determine whether or not to accept the implementation. This includes the planning and execution of several kinds of tests (e.g., functionality, quality, and speed performance testing) that demonstrate that the implementation satisfies the user requirements.

Performance testing: measures the performance characteristics of an implementation under test (IUT) such as its throughput and responsiveness, under various conditions.

Robustness testing: the process of determining how well an implementation processes data which contains errors.

2 References

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

- Recommendation ITU-T T.800 | ISO/IEC 15444-1, *Information technology – JPEG 2000 image coding system: Core coding system.*
- Recommendation ITU-T T.814 | ISO/IEC 15444-15, *Information technology – JPEG 2000 image coding system: High-throughput JPEG 2000*.

3 Definitions

For the purposes of this Recommendation | International Standard, the terms and definitions given in Rec. ITU-T T.800 | ISO/IEC 15444-1, Rec. ITU-T T.814 | ISO/IEC 15444-15 and the following apply.

3.1 **abstract test suite (ATS)**: Generic compliance testing concepts and procedures for a given requirement.

3.2 **arithmetic coder**: Entropy coder that converts variable length strings to variable length codes (encoding) and vice versa (decoding).

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[1] This Recommendation | International Standard includes an electronic attachment with the codestreams used in the application of the procedures described the Specification.

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