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Interested committees:

Title: BS ISO/IEC 6048-3 Draft Information technology. JPEG AI learning-based image coding system. Part 3: Reference software.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/IEC DIS 6048-3

Information technology — JPEG AI learning-based image coding system —

Part 3: Reference software

ICS: ISO ics

ISO/IEC JTC 1/SC 29

Secretariat: JISC

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2025-04-07

Voting terminates on:
2025-06-30

This document is circulated as received from the committee secretariat.

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Foreword

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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.

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For an explanation of 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 www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by ITU-T (as ITU Common text T.840.1) 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*.

A list of all parts in the ISO/IEC 6048 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

Learning-based image coding - File format

Introduction

Purpose

The purpose of this Recommendation | International Standard is to provide the following:

- Reference decoder software capable of decoding bitstreams that conform to Rec. ITU-T T.840.1 | ISO/IEC 6048-1 in a manner that conforms to the decoding process specified in Rec. Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- Reference encoder software capable of producing bitstreams that conform to Rec. ITU-T T.840.1 | ISO/IEC 6048-1.

Examples of use

Some examples of uses that may be appropriate for the reference decoder software are as follows:

- As an illustration of how to perform an decoding process specified in Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- As the starting basis for the implementation of a decoder that conforms to Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- For testing the conformance of a decoder implementation with the decoding process specified in Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- For testing the conformance of a bitstream to the constraints specified for bitstream conformance in Rec. ITU-T T.840.1 | ISO/IEC 6048-1, as the software can detect and report many bitstream conformance violations.

NOTE 1 – However, the lack of the detection of any conformance violation by the reference decoder software should not be considered as definitive proof that the bitstream conforms to all constraints specified for bitstream conformance in Rec. ITU-T T.840.1 | ISO/IEC 6048-1.

Some examples of uses that may be appropriate for the reference encoder software are as follows:

- As an illustration of how to perform the encoding process that produces bitstreams that conform to the constraints specified for bitstream conformance in Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- As the starting basis for the implementation of an encoder that conforms to Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- As a method for generating bitstreams to test whether a decoder implementation is conformant with the decoding process specified in Rec. ITU-T T.840.1 | ISO/IEC 6048-1.
- As a method for evaluating and demonstrating examples of the decoded quality that can be achieved by an encoding process that conforms to Rec. ITU-T T.840.1 | ISO/IEC 6048-1.

NOTE 2 – However, no guarantee of the quality that will be achieved by an encoder is provided by its conformance to Rec. ITU-T T.840.1 | ISO/IEC 6048-1, as the conformance of an encoder to Rec. ITU-T T.840.1 | ISO/IEC 6048-1 is defined only in terms of format constraints imposed on the bitstream syntax. Thus, while the reference encoder software may suffice to provide some illustrative examples of what quality can be achieved in conformance to Rec. ITU-T T.840.1 | ISO/IEC 6048-1, it provides neither an assurance of minimum guaranteed video encoding quality nor maximum achievable video encoding quality.

Warranty disclaimer

Regardless of any and all statements made herein or elsewhere regarding the possible uses of the reference software, the following disclaimers of warranty apply to the provided reference software.

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1 Scope

This Recommendation | International Standard is the reference software for Rec. ITU-T T.840.1 | ISO/IEC 6048-1 JPEG AI learning-based image coding system - Part 1: Core coding system. The reference software includes both encoder and decoder functionality.

Reference software is useful in aiding users of a image coding standard to establish and test conformance and interoperability, and to educate users and demonstrate the capabilities of the standard. For these purposes, the accompanying software is provided as an aid for the study and implementation of Rec. ITU-T T.840.1 | ISO/IEC 6048-1 JPEG AI learning-based image coding system - Part 1: Core coding system .

This Specification provides reference implementations of ISO/IEC 6048-1 and ITU-T.840.1 standards, also known as "JPEG AI". The software supports lossy compression of images.

The software has been jointly developed by the ITU-T Video Coding Experts Group (VCEG, Question 6 of ITU-T Study Group 16) and the ISO/IEC Joint Picture Experts Group (JPEG, Working Group 1 of Subcommittee 29 of ISO/IEC Joint Technical Committee 1).

2 Normative 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.

2.1 Identical Recommendations | International Standards

- None

2.2 Paired Recommendations | International Standards equivalent in technical content

- Rec. ITU-T T.840.1 | ISO/IEC 6048-1 — *Learning-based image coding — Core coding system*
- Rec. ITU-T T.840.2 | ISO/IEC 6048-2 — *Learning-based image coding — Profiles*

2.3 Additional references

- None

3 Definitions

For the purposes of this Recommendation | International Standard, the terms and definitions given in ISO/IEC 14496-12, Rec. ITU-T T.840.1 | ISO/IEC 6048-1, Rec. ITU-T T.840.2 | ISO/IEC 6048-2, ISO/IEC 23008-12 and the following apply.

3.1 reference software decoder: The decoding software accompanying this Recommendation | International Standard.