

Australian Standard[®]

Information technology—MPEG video technologies

Part 1: Accuracy requirements for implementation of integer-output 8×8 inverse discrete cosine transform

STANDARDS
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PREFACE

This Standard was prepared by the Standards Australia Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information.

This Standard is identical with and has been reproduced from ISO/IEC 23002.1:2006, *Information technology—MPEG video technologies—Part 1: Accuracy requirements for implementation of integer-output 8×8 inverse discrete cosine transform*.

The objective of this Standard is to provide the Australian multimedia industry with conformance requirements for establishing sufficient accuracy in an integer-output IDCT implementation. This Standard also helps to establish partial or complete requirements for IDCT accuracy for conformance to other Standards that require IDCT use.

Standards Australia is in the process of adopting most of the ISO/IEC 23002 series of Standards. Refer to the Standards Australia website for the current list.

The term ‘normative’ has been used in this Standard to define the application of the annex to which it applies. A ‘normative’ annex is an integral part of a Standard.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number appears on the cover and title page, while the International Standard number appears only on the cover.
- (b) In the source text, ‘this part of ISO/IEC 23002-1’ should read ‘this Australian Standard’.
- (c) Substitute a full point for a comma as a decimal marker.

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Part 1:

Accuracy requirements for implementation of integer-output 8×8 inverse discrete cosine transform

1 Scope

A number of image and video coding related standards (see Bibliography) include a requirement for decoders to implement an integer-output 8×8 inverse discrete cosine transform (IDCT) for the generation of inverse-transformed sample differences with a nominal range from -2^B to $(2^B)-1$ for some integer number of bits B , where B is greater than or equal to 8. This part of ISO/IEC 23002 specifies conformance requirements for establishing sufficient accuracy in such an integer-output IDCT implementation. It is intended to be suitable for reference to establish partial or complete requirements for IDCT accuracy for conformance to other standards that require IDCT use.

The accuracy requirements specified in the main body of this part of ISO/IEC 23002 are essentially the same as those previously specified in [7], in Annex A of [1], and in Annex A of [5]. These requirements have been specified herein to resolve normative references to [7] in MPEG standards after its withdrawal and to provide improved clarity for the specification of IDCT accuracy requirements.

An additional requirement on encoded-bitstream intra refresh frequency was also previously specified in [7], establishing a requirement of bitstream conformance that each macroblock be intra-coded at least once within each series of 132 times that it is coded in a predicted picture without an intervening intra picture. That additional requirement is not specified in this part of ISO/IEC 23002, in order to confine its scope to the domain of decoder conformance specification.

Some allowances for modification of the specified accuracy requirements are made within this part of ISO/IEC 23002. Additional accuracy requirements that may be invoked by a referencing specification are specified in Annexes A and B.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

array

indexed collection of scalar values

NOTE Square parentheses are used to indicate the indexing of arrays. For example, $s[5]$ denotes the entry at index 5 in the array.

2.2

discrete cosine transform

2.2.1

transformation that produces an output matrix of transform coefficients from an input matrix of samples using some approximation of the process specified in 5.1 or 5.2