



SLOVENSKI STANDARD

SIST ISO 12231:2011

01-julij-2011

Fotografija - Elektronsko upodabljanje mirujočih slik - Pojmovnik

Photography - Electronic still picture imaging - Vocabulary

Photographie - Prises de vue électroniques - Vocabulaire

Ta slovenski standard je istoveten z: **ISO 12231:2005**

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ICS:

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37.040.01	Fotografija na splošno	Photography in general

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INTERNATIONAL
STANDARD

ISO
12231

Second edition
2005-02-01

**Photography — Electronic still picture
imaging — Vocabulary**

Photographie — Prises de vue électroniques — Vocabulaire

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ISO 12231:2005(E)**Foreword**

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12231 was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 12231:1997), which has been technically revised.

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Introduction

Electronic still picture imaging concepts are drawn from traditional photography, electronics, video, and information technology. In some cases the concepts must be redefined to apply to electronic still picture imaging. For example, unlike traditional photography, measurements cannot be defined in terms of “film” or “sensitized material”, since images acquired by digital image capture devices are stored electronically and are not immediately exposed on film. The meaning of shutter and exposure time is also different for digital image capture devices, because an electronic imaging sensor typically has image acquisition characteristics that are different from those of film.

The purpose of this vocabulary is to standardize the use and meaning of terms associated with electronic still picture imaging. It is organized alphabetically and follows natural (English) word order wherever possible. The source of most of the terms in this International Standard are the documents on electronic still picture imaging developed by ISO/TC 42/WG 18, and ISO/TC 42/JWG 20 and 23 (with ISO/TC 130). Definitions from some other TC 42 International Standards, e.g. flare, are also included for completeness. The ISO numbers provided in brackets following the definition reference documents listed in the bibliography that serve as the source of the definition. At the end of some definitions, other terms are listed (preceded by “cf.”) that are related to the term being defined. An alphabetical index is included at the end of the document.

Terms from working drafts and committee drafts of standards under development within ISO/TC 42 (as of 15 August 2002) are provided in Annex A. These terms are more likely to change as the source documents progress. Definitions are provided in this International Standard to facilitate communication. Where possible, the latest draft of the source document should be reviewed to see if a more current definition is available. Future revisions of this International Standard will include updated terms and definitions consistent with the source documents at the time the revision is prepared.

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Photography — Electronic still picture imaging — Vocabulary

1 Scope

This International Standard defines terms used in electronic still picture imaging.

Only terms related to electronic still picture imaging are included. These terms are relevant to the current tasks or are of general interest in electronic still picture imaging.

2 Terms and definitions

2.1

addressable photoelements

number of active photoelements on an image sensor, which is equal to the number of active lines of photoelements times the number of active photoelements per line

[ISO 12233, ISO 16067-1, ISO 16067-2, ISO 21550]

NOTE The term resolution should not be used when referring to the addressable photoelements. It is possible that the addressable photoelements may be different for the different colour records of an image. When the signal values of the photoelements are digitized, the digitized code values may be referred to as picture elements, or pixels.

2.2

aliasing

output image artefacts that occur in a sampled imaging system for input images having significant energy at frequencies higher than the Nyquist frequency of the system

[ISO 12233, ISO 16067-1, ISO 16067-2, ISO 21550]

NOTE These artefacts usually manifest themselves as moiré patterns in repetitive image features or as jagged stair-stepping at edge transitions.

2.3

aliasing ratio

value equal to the “maximum minus minimum” modulation divided by the “average” modulation of an electronic still picture camera when imaging a frequency burst of constant spatial frequency

[ISO 12233]

2.4

analog-to-digital converter

A/D or ADC

circuit that converts an analog signal, having a continuously varying amplitude, to a digitally quantized representation using binary output signals

2.5

application

image application software for use on a personal computer

[ISO 12234-3]

ISO 12231:2005(E)**2.6 Aspect ratio****2.6.1****image aspect ratio**

ratio of the image width to the image height

[ISO 12233, ISO 15740]

2.6.2**pixel aspect ratio**

ratio of the distance between sampling points in the two orthogonal sampling directions

NOTE 1 If the distances are equal, the pixel aspect ratio equals 1:1, and is said to be “square”.

NOTE 2 Retained from ISO 12231:1997.

2.7**charge coupled device****CCD**

type of silicon integrated circuit used to convert light into an electronic signal

2.8**colour filter array****CFA**

mosaic or stripe layer of coloured transmissive filters fabricated on top of an imager in order to obtain a colour image from a single image sensor

2.9**colour matching functions**

tristimulus values of monochromatic stimuli of equal radiant power

[CIE Publication 17.4 (845-03-23), ISO 17321-1, ISO 17321-2, ISO 22028-1]

cf. **tristimulus value**

2.10**colour space**

geometric representation of colours in space, usually of three dimensions

[CIE Publication 17.4 (845-03-25), ISO 17321-1, ISO 17321-2, ISO 22028-1]

2.11 Compression**2.11.1****image compression**

process that alters the way digital image data are encoded in order to reduce the size of an image file

[ISO 12233]

2.11.2**sound compression**

process of altering the sound data coding in order to reduce the size of a sound file in the electronic still picture camera

[ISO 12234-1]

cf. **sound recording**

2.12

cycles per millimetre **cy/mm**

unit used for specifying resolution characteristics in terms of the response of an imaging system to a linear radiance sine wave input, as a function of the frequency of the sine wave

[ISO 12233]

NOTE 1 A range of input sine wave frequencies is obtained in ISO 12233 through the use of a sharp edge target.

NOTE 2 Most pictorial imaging systems exhibit non-linear behaviour, which may result in the nature of the target affecting the measured resolution characteristics. Distance units other than millimetres may also be used.

2.13

DCF **design rule for camera file system**

design rules for camera file system as specified in ISO 12234-3

NOTE DCF provides a standard convention for camera file systems that specifies the file format, folders, and naming conventions in order to promote file interoperability between conforming digital still photography devices.

2.14

DCF basic file

image file stored directly under a DCF directory, having a DCF filename and the extension “JPG” and having the DCF-defined data structure, based on the Exif standard

[ISO 12234-3]

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2.15

DCF basic main image

Exif primary image included in a DCF basic file

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[ISO 12234-3]

2.16

DCF basic thumbnail

Exif thumbnail image included in a DCF basic file

[ISO 12234-3]

2.17

DCF-compatible

meeting the requirements of ISO 12234-3

[ISO 12234-3]

2.18

DCF directory

directory under the DCF image root directory for storing images, created in accordance with the DCF directory rules

[ISO 12234-3]

2.19

DCF directory name

directory name assigned in accordance with the DCF directory-naming conventions

[ISO 12234-3]

ISO 12231:2005(E)**2.20****DCF extended image file**

image file stored directly under a DCF directory, having an extension and data structure different from a DCF basic file

[ISO 12234-3]

2.21**DCF file name**

file name assigned in accordance with the DCF file-naming conventions

[ISO 12234-3]

2.22**DCF image root directory**

directory directly under the root directory, created in accordance with the DCF directory rules

[ISO 12234-3]

2.23**DCF media**

removable memory recorded in accordance with the DCF requirements

[ISO 12234-3]

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2.24**DCF object**

group of files having the same file number stored in the same DCF directory

[ISO 12234-3]

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2.25**DCF thumbnail file**

compressed file for storing the thumbnail image of a DCF extended image file

[ISO 12234-3]

2.26**depth of field**

difference between the maximum and minimum distances from a camera lens's front nodal point to objects in a scene that can be captured in acceptably sharp focus

2.27**digital output level**

digital code value

numerical value assigned to a particular output level

[ISO 14524, ISO 15739, ISO 16067-1, ISO 16067-2, ISO 21550]

2.28**digital still camera****DSC**

device which incorporates an image sensor and produces a digital signal representing a still picture

[ISO 12234-3, ISO 17321-1, ISO 17321-2]

NOTE A digital still camera is typically a portable, hand-held device. The digital signal is usually recorded on a removable memory, such as a solid-state memory card or magnetic disk.

2.29**directory number**

three-digit number which is comprised of the first three characters of the DCF directory name

[ISO 12234-3]

2.30**edge spread function****ESF**

normalized spatial signal distribution in the linearized output of an imaging system resulting from imaging a theoretical infinitely sharp edge

[ISO 12233, ISO 16067-1, ISO 16067-2, ISO 21550]

cf. **line spread function, point spread function**

2.31**effectively spectrally neutral**

having spectral characteristics which result in a specific imaging system producing the same output as for a spectrally neutral object

[ISO 12233, ISO 16067-1, ISO 16067-2, ISO 21550]

cf. **spectrally neutral**

2.32**electronic scanner(1)**

⟨photographic films⟩ scanner incorporating an image sensor that outputs a digital signal representing a still film image

[ISO 16067-2, ISO 21550]

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2.33**electronic scanner(2)**

⟨photographic prints⟩ scanner incorporating an image sensor that outputs a digital signal representing a still print image

[ISO 16067-1]

2.34**electronic shutter**

any one of three devices for controlling the exposure time of an electronic still picture camera

2.34.1**electronically shuttered sensor**

component of an electronic still camera which electronically controls the image sensor itself in order to set the exposure time

2.34.2**electromechanical shutter**

mechanical shutter which is electronically controlled

2.34.3**electro-optical shutter**

electronically driven device in front of the image sensor which changes the optical path transmittance

ISO 12231:2005(E)**2.35****electronic still picture camera**

camera incorporating an image sensor that outputs an analog or digital signal representing a still picture, and/or records an analog or digital signal representing a still picture on a removable medium, such as a memory card or magnetic disc

[ISO 12232, ISO 12233, ISO 15739]

2.36**Exif****exchangeable image file format**

digital still camera image file format standard of the Japan Electronic Industry Development Association (JEIDA)

[ISO 12234-3]

NOTE The JPEG version of Exif provides a compressed file format for digital cameras in which the images are compressed using the baseline JPEG standard described in ISO/IEC 10918-1, and metadata and thumbnail images are stored using TIFF tags within an application segment at the beginning of the file.

2.37**exposure index**

numerical value that is inversely proportional to the exposure provided to an image sensor to obtain an image

[ISO 12232]

NOTE Images obtained from a camera using a range of exposure index values will normally provide a range of image quality levels.

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2.38**exposure process**

various methods to capture images in the electronic still picture camera

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2.38.1**single exposure**

acquisition of a picture by a single exposure, with one or more image sensors, that exposes all sensor pixels, all colours, and all image locations at the same time

2.38.2**colour sequential exposure**

acquisition of a picture by combining repeated exposures to capture different colour components

NOTE Colour sequential exposure can be by means of three colour illuminations, or by three colour filters.

2.38.3**time sequential exposure**

acquisition of a picture by combining repeated exposures to capture different spatial components

NOTE Time sequential exposure can be with a line array (line scanning) or an area array. With a line array, the picture is acquired by optical or physical sub-scanning with an image sensor in one dimension. With an area array, repeated exposures may integrate smaller pictures into a larger picture by means of image sensor shifting.

2.39**exposure series**

series of images of the same subject taken using different exposure index values

[ISO 12232]

2.40**fast scan direction**

scan direction corresponding to the direction of the alignment of the addressable photoelements in a linear array image sensor

[ISO 16067-1, ISO 16067-2, ISO 21550]

2.41**file extension**

three identifying characters used in the DOS/FAT file system following the file name and dot

[ISO 12234-3]

2.42**file name**

eight-character file name of the DOS/FAT file system, excluding the dot and file extension

[ISO 12234-3]

2.43**file number**

four-digit number which comprises the last four characters of the DCF file name

[ISO 12234-3]

2.44**file system**

software structure which specifies how the data are logically organized on a given storage medium

[ISO 12234-1, ISO 12234-2]

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2.45**flare**

light falling on an image, in an imaging system, which does not emanate from the subject point

[ISO 3664]

cf. **veiling glare**

NOTE Veiling glare is also sometimes referred to as flare.

2.45.1**veiling flare**

relatively uniform but unwanted irradiation in the image plane of an optical system, caused by the scattering and reflection of a proportion of the radiation which enters the system through its normal entrance aperture

[ISO 3664]

NOTE 1 The veiling flare radiation may be from inside or outside the field of view of the system.

NOTE 2 Light leaks in an optical system housing can cause additional unwanted irradiation of the image plane. This irradiation may resemble veiling flare.

2.46**free characters**

five characters following the directory number in a DCF directory name, or the four characters at the beginning of a DCF file name

[ISO 12234-3]