TECHNICAL REPORT

ISO/TR 12231-2

First edition
2022-05

Photography — Electronic still picture imaging terminology —

Part 2:
Other defined terms

Photographie — Terminologie de l'imagerie de prises de vue électroniques —

Partie 2: Autres termes définis

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 ISO documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

This document was prepared by Technical Committee ISO/TC 42, Photography.

This first edition of ISO/TR 12231-2 together with ISO 12231-1:2020 cancels and replaces ISO 12231:2012, which has been technically revised. The main changes are as follows:

All terms defined in publications maintained by ISO/TC 42 WG 18, WG 20, WG 23 and WG 25 are listed in this document, with the publication containing the definition indicated. Terms that are not defined in other WG 18, WG 20 WG 23, and WG 25 publications are defined in ISO 12231-1:2020.

A list of all parts in the ISO 12231 series can be found on the ISO website.

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.

Introduction

Electronic still picture imaging concepts are drawn from traditional photography, electronics, video, and information technology. In some cases, the concepts are redefined to apply to electronic still picture imaging. For example, unlike traditional photography, measurements cannot be defined in terms of "film" or "sensitised 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.

Photography — Electronic still picture imaging terminology —

Part 2:
Other defined terms

1 Scope

This document provides a list of terms defined in other ISO/TC 42 International Standards, Technical Specifications and Technical Reports relevant to electronic still picture imaging.

This document is intended to be used in conjunction with the definition sources listed.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Terms defined in other ISO/TC 42 International Standards, Technical Specifications and Technical Reports

Table 1 gives a list of terms defined in other ISO/TC 42 International Standards, Technical Specifications and Technical Reports, and their sources.

Table 1 — List of terms and sources

Term	Source of definition
35 mm film equivalent focal length	ISO 19093:2018, 3.3
	ISO 20954-1:2019, 3.7
absolute colorimetric coordinates	ISO/TR 17321-2:2012, 2.1
	ISO 22028-1:2016, 3.1
actual image height	ISO 17850:2015, 3.2.2
adapted white	ISO/TR 17321-2:2012, 2.2
	ISO 22028-1:2016, 3.2
	ISO 22028-2:2013, 3.1
	ISO/TS 22028-3:2012, 3.1
	ISO/TS 22028-4:2012, 3.1

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Table 1 *(continued)*

Term	Source of definition
additive RGB colour space	ISO 22028-1:2016, 3.3
	ISO 22028-2:2013, 3.2
	ISO/TS 22028-3:2012, 3.2
	ISO/TS 22028-4:2012, 3.2
addressable photoelements	ISO 12233:2017, 3.1
	ISO 16067-1:2003, 3.1
	ISO 16067-2:2004, 3.1
	ISO 21550:2004, 3.1
adopted white	ISO 17321-1:2012, 3.1
	ISO/TR 17321-2:2012, 2.3
	ISO 22028-1:2016, 3.4
	ISO/TS 22028-3:2012, 3.3
album	ISO 15740:2013, 3.1
aliasing	ISO 12233:2017, 3.2
	ISO 16067-1:2003, 3.2
	ISO 16067-2:2004, 3.2
aliasing ratio	ISO 12231:2020, 3.1
application	ISO 12231:2020, 3.2
artefactual attribute	ISO 20462-1:2005, 3.1
	ISO 20462-3:2012, 3.1
association	ISO 15740:2013, 3.2
attribute	ISO 20462-1:2005, 3.2
	ISO 20462-3:2012, 3.2
attribute just noticeable difference attribute JND	ISO 20462-1:2005, 3.3
average vibration angle	ISO 20954-1:2019, 3.6
bi-tonal pattern/bitonal patterns	ISO 12233:2017, 3.27.1
	ISO 16067-2:2004, 3.21.1
	ISO 21550:2004, 3.26.1
camera opto-electronic conversion function camera OECF	ISO 14524:2009, 3.1
	ISO 15739:2017, 3.1
capture point	ISO 15781:2019, 3.8
categorical sort method	ISO 20462-1:2005, 3.4
	ISO 20462-2:2005, 2.5
chromatic displacement	ISO 19084:2015, 2.1
clipping value	ISO 15739:2017, 3.2
colorimetric colour space	ISO 22028-1:2016, 3.5
	ISO 22028-2:2013, 3.3
	ISO/TS 22028-3:2012, 3.4
	ISO/TS 22028-4:2012, 3.3

Table 1 *(continued)*

Term	Source of definition
colour component transfer function CCTF	ISO/TR 17321-2:2012, 2.5
	ISO 22028-1:2016, 3.6
	ISO 22028-2:2013, 3.4
	ISO/TS 22028-3:2012, 3.5
	ISO/TS 22028-4:2012, 3.4
colour-difference-sensitive wavelength	ISO/TR 17321-5:2021, 3.1
colour encoding	ISO 22028-1:2016, 3.7
	ISO 22028-2:2013, 3.5
	ISO/TS 22028-3:2012, 3.6
	ISO/TS 22028-4:2012, 3.5
colour gamut	ISO/TR 17321-2:2012, 2.6
	ISO 22028-1:2016, 3.8
	ISO 22028-2:2013, 3.6
	ISO/TS 22028-3:2012, 3.7
	ISO/TS 22028-4:2012, 3.6
colour image encoding	ISO 22028-1:2016, 3.9
	ISO 22028-2:2013, 3.7
	ISO/TS 22028-3:2012, 3.8
	ISO/TS 22028-4:2012, 3.7
colour matching functions	ISO/TR 17321-2:2012, 2.7
	ISO/TS 17321-4:2016, 3.1
	ISO/TR 17321-5:2021, 3.2
	ISO 22028-1:2016, 3.10
colour pixel reconstruction	ISO/TR 17321-2:2012, 2.8
colour rendering	ISO/TR 17321-2:2012, 2.9
	ISO 22028-1:2016, 3.11
	ISO 22028-2:2013, 3.8
	ISO/TS 22028-3:2012, 3.9
	ISO/TS 22028-4:2012, 3.8
colour rendering index	ISO 3664:2009, 3.2
	ISO/TS 17321-4:2016, 3.2
colour re-rendering	ISO 22028-1:2016, 3.12
colour sequential exposure	ISO 12231-1,2020, 3.3
colour shading colour non-uniformity	ISO 17957:2015, 3.2
colour space	ISO/TR 17321-2:2012, 2.10
	ISO 22028-1:2016, 3.13
	ISO 22028-2:2013, 3.9
	ISO/TS 22028-3:2012, 3.10
	ISO/TS 22028-4:2012, 3.9

Table 1 *(continued)*

Term	Source of definition
colour space encoding	ISO 22028-1:2016, 3.14
	ISO 22028-2:2013, 3.10
	ISO/TS 22028-3:2012, 3.11
	ISO/TS 22028-4:2012, 3.10
colour space white point	ISO 22028-1:2016, 3.15
	ISO 22028-2:2013, 3.11
	ISO/TS 22028-3:2012, 3.14
	ISO/TS 22028-4:2012, 3.11
connection	ISO 15740:2013, 3.3
continuous colour space values	ISO 22028-1:2016, 3.16
	ISO 22028-2:2013, 3.12
corresponding colorimetry	ISO/TR 17321-2:2012, 2.11
cycles per millimetre cy/mm	ISO 12233:2017, 3.3
data object	ISO 15740:2013, 3.5
datacode	ISO 15740:2013, 3.4
dataset	ISO 15740:2013, 3.6
design rule for camera filesystem DCF	ISO 15740:2013, 3.7
device discovery	ISO 15740:2013, 3.8
device-dependent colour space	ISO 22028-1:2016, 3.17
digital imaging system	ISO 22028-1:2016, 3.18
digital output level digital code value	ISO 14524:2009, 3.2
	ISO 16067-1:2003, 3.3
	ISO 16067-2:2004, 3.3
	ISO 21550:2004, 3.3
digital print order format DPOF	ISO 15740:2013, 3.10
digital reference stimuli DRS	ISO 20462-3:2012, 3.3
digital still camera DSC	ISO 12232:2019, 3.1
	ISO 15739:2017, 3.3
	ISO 15781:2019, 3.1
	ISO 17321-1:2012, 3.2
	ISO/TR 17321-2:2012, 2.12
	ISO/TS 17321-4:2016, 3.3
	ISO/TR 17321-5:2021, 3.3
digital still photography device DSPD	ISO 15740:2013, 3.9
DSC dynamic range	ISO 15739:2017, 3.8
DSC image signal	ISO 12232:2019, 3.2

Table 1 *(continued)*

Term	Source of definition
edge spread function ESF	ISO 12233:2017, 3.4
	ISO 16067-1:2003, 3.4
	ISO 16067-2:2004, 3.4
	ISO 21550:2004, 3.4
edge-based spatial frequency response e-SFR	ISO 12233:2017, 3.24.1
effective time	ISO 516:2019, 3.3
effectively spectrally neutral	ISO 12233:2017, 3.5
	ISO 16067-1:2003, 3.5
	ISO 16067-2:2004, 3.5
	ISO 21550:2004, 3.5
electromechanical shutter	ISO 14524:2009, 3.3
electronic scanner for photographic films	ISO 16067-2:2004, 3.6
	ISO 21550:2004, 3.6
electronic scanner for photographic prints	ISO 16067-1:2003, 3.6
electronic still-picture camera	ISO 12233:2017, 3.6
	ISO 14524:2009, 3.4
enumeration	ISO 15740:2013, 3.11
Exif	ISO 12234-3:2016, 3.1
Exif/JPEG	ISO 15740:2013, 3.12
exposure index EI	ISO 12232:2019, 3.3
exposure process	ISO 12231-1:2020, 3.4
exposure saturation	ISO 12232:2019, 3.4
exposure series	ISO 12232:2019, 3.5
exposure time	ISO 516:2019, 3.4
	ISO 15739:2017, 3.12
extended gamut	ISO 22028-1:2016, 3.19
	ISO 22028-2:2013, 3.13
	ISO/TS 22028-4:2012, 3.12
factory shipping conditions factory shipping settings factory shipping values factory shipping mode	ISO 18383:2015, 3.1
fast scan direction	ISO 16067-1:2003, 3.7
	ISO 16067-2:2004, 3.7
	ISO 21550:2004, 3.7
file system filing system	ISO 12234-1:2012, 3.1
	ISO 12234-2:2001, 3.1
film rendering transform	ISO 22028-1:2016, 3.20
film unrendering transform	ISO 22028-1:2016, 3.21
fixed pattern noise	ISO 15739:2017, 3.9.2
flare	ISO 12231-1:2020, 3.5
FlashPix	ISO 15740:2013, 3.14

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Table 1 *(continued)*

Term	Source of definition
fluctuation of exposure time	ISO 516:2019, 3.7
focal plane opto-electronic conversion function focal plane OECF	ISO 14524:2009, 3.5
	ISO 15739:2017, 3.11
focal-plane shutter	ISO 516:2019, 3.2
folder	ISO 15740:2013, 3.13
FP contact	ISO 516:2019, 3.14
front shutter	ISO 516:2019, 3.1
full frame sensor	ISO 19093:2018, 3.3
gamma correction	ISO 12233:2017, 3.7
	ISO 16067-1:2003, 3.8
	ISO 16067-2:2004, 3.8
	ISO 21550:2004, 3.8
gamut mapping	ISO 22028-1:2016, 3.22
	ISO 22028-2:2013, 3.14
	ISO/TS 22028-4:2012, 3.13
geometric distortion	ISO 17850:2015, 3.1
grey scale patterns	ISO 16067-1:2003, 3.20.2
	ISO 16067-2:2004, 3.21.2
	ISO 21550:2004, 3.26.2
handheld blur	ISO 20954-1:2019, 3.3
handheld blur threshold	ISO 20954-1:2019, 3.5
handheld limit exposure time	ISO 19093:2018, 3.1
hardcopy	ISO 3664:2009, 3.4
	ISO 22028-1:2016, 3.23
horizontal resolution	ISO 12233:2017, 3.8
hyperbolic wedge test pattern	ISO 12233:2017, 3.27.2
ICC profile	ISO 22028-1:2016, 3.24
	ISO 22028-2:2013, 3.15
	ISO/TS 22028-4:2012, 3.14
ideal image height	ISO 17850:2015, 3.2.3
IEEE 1394	ISO 15740:2013, 3.15
illuminance scale exposure series	ISO 14524:2009, 3.6
image area	ISO 18383:2015, 3.2
image aspect ratio	ISO 12233:2017, 3.9
	ISO 15740:2013, 3.16
image capture device	ISO 15740:2013, 3.17
image compression	ISO 12233:2017, 3.10
image data format	ISO 12234-1:2012, 3.2
	ISO 12234-2:2001, 3.2
image flare	ISO 18844:2017, 3.1
image height	ISO 17850:2015, 3.2.1
image output device	ISO 15740:2013, 3.18

Table 1 *(continued)*

Term	Source of definition
image quality	ISO 17850:2015, 3.3
	ISO 20462-1:2005, 3.5
	ISO 20462-3:2012, 3.4
image sensor	ISO 12232:2019, 3.6
	ISO 12233:2017, 3.11
	ISO 15739:2017, 3.4
	ISO 16067-1:2003, 3.9
	ISO 16067-2:2004, 3.9
	ISO 21550:2004, 3.9
image state	ISO 22028-1:2016, 3.25
	ISO 22028-2:2013, 3.16
	ISO/TS 22028-3:2012, 3.13
	ISO/TS 22028-4:2012, 3.15
image stabilization	ISO 20954-1:2019, 3.1
image storage application profile ISAP	ISO 12234-1:2012, 3.3
in-band event	ISO 15740:2013, 3.19
incremental gain function	ISO 14524:2009, 3.7
	ISO 15739:2017, 3.5
	ISO 21550:2004, 3.10
incremental output signal	ISO 14524:2009, 3.8
	ISO 15739:2017, 3.6
	ISO 21550:2004, 3.11
incremental signal to noise ratio	ISO 15739:2017, 3.7
	ISO 21550:2004, 3.12
Infrared Data Association IrDA	ISO 15740:2013, 3.21
initiator	ISO 15740:2013, 3.20
instructions	ISO 20462-1:2005, 3.6
	ISO 20462-3:2012, 3.5
International Color Consortium profile connection space (ICC PCS)	ISO 22028-1:2016, 3.26
ISO scanner dynamic range	ISO 21550:2004, 3.13
ISO speed	ISO 12232:2019, 3.7
ISO speed latitude	ISO 12232:2019, 3.8
Joint Photographic Experts Group JPEG	ISO 15740:2013, 3.22
just noticeable difference JND	ISO 20462-1:2005, 3.7
	ISO 20462-2:2005, 2.1
	ISO 20462-3:2012, 3.6
light-emitting diode LED	ISO/TS 17321-4:2016, 3.4
	ISO/TR 17321-5:2021, 3.4

Table 1 *(continued)*

Term	Source of definition
line pairs per millimetre lp/mm	ISO 12233:2017, 3.12
line spread function LSF	ISO 12233:2017, 3.13
line widths per picture height LW/PH	ISO 12233:2017, 3.14
linearized	ISO 12233:2017, 3.15
lines per millimetre lines/mm	ISO 12233:2017, 3.16
LogicalStorageID	ISO 15740:2013, 3.23
luminance factor	ISO 22028-1:2016, 3.27
	ISO 22028-2:2013, 3.17
	ISO/TS 22028-3:2012, 3.14
	ISO/TS 22028-4:2012, 3.16
luminance ratio	ISO 22028-1:2016, 3.28
luminance shading luminance non-uniformity	ISO 17957:2015, 3.1
M contact	ISO 516:2019, 3.13
magnitude estimation method	ISO 20462-1:2005, 3.8
	ISO 20462-3:2012, 3.7
maximum exposure limit	ISO 14524:2009, 3.9
media profile	ISO 12234-1:2012, 3.4
medium black point	ISO 22028-1:2016, 3.29
	ISO 22028-2:2013, 3.18
	ISO/TS 22028-4:2012, 3.17
medium white point	ISO 22028-1:2016, 3.30
	ISO 22028-2:2013, 3.19
	ISO/TS 22028-4:2012, 3.18
memory card	ISO 12234-1:2012, 3.5
memory module	ISO 12234-1:2012, 3.6
metadata	ISO 22028-1:2016, 3.31
minimum exposure limit	ISO 14524:2009, 3.10
modulation	ISO 12233:2017, 3.17
modulation transfer function MTF	ISO 12233:2017, 3.18
most significant nibble MSN	ISO 15740:2013, 3.24
multivariate	ISO 20462-1:2005, 3.9
	ISO 20462-3:2012, 3.8
namespace	ISO 12234-3:2016, 3.2
noise	ISO 15739:2017, 3.9
noise spectrum	ISO 15739:2017, 3.10
non-uniformity of exposure	ISO 516:2019, 3.9
normalized spatial frequency	ISO 12233:2017, 3.19
number of shots	ISO 20087:2016, 2.1

Table 1 *(continued)*

Term	Source of definition
Nyquist limit	ISO 12231-1:2020, 3.6
object aggregation	ISO 15740:2013, 3.25
ObjectHandle	ISO 15740:2013, 3.26
observer	ISO 20462-1:2005, 3.10
	ISO 20462-2:2005, 2.6
	ISO 20462-3:2012, 3.9
observer adaptive luminance factor	ISO/TS 22028-3:2012, 3.15
optical image stabilization	ISO 20954-1:2019, 3.2
optical transfer function OTF	ISO 12233:2017, 3.20
opto-electronic conversion function OECF	ISO 14524:2009, 3.11
	ISO 17321-1:2012, 3.3
opto-electronic digital image capture system	ISO 14524:2009, 3.12
original-referred image state	ISO 22028-1:2016, 3.32
out-of-band event	ISO 15740:2013, 3.27
output image	ISO 18383:2015, 3.3
output noise	ISO 14524:2009, 3.13
output-referred image data	ISO/TR 17321-2:2012, 2.13
output-referred image state	ISO 22028-1:2016, 3.33
	ISO 22028-2:2013, 3.20
	ISO/TS 22028-3:2012, 3.16
	ISO/TS 22028-4:2012, 3.19
overall sensor spectral sensitivities OSSS	ISO/TR 17321-5:2021, 3.5
overall time	ISO 516:2019, 3.10
paired comparison method	ISO 20462-1:2005, 3.11
	ISO 20462-2:2005, 2.3
	ISO 20462-3:2012, 3.10
Personal Computer PC	ISO 15740:2013, 3.28
photoflash synchronization delay time	ISO 516:2019, 3.11
photographic sensitivity	ISO 12232:2019, 3.9
photography	ISO 12231-1:2020, 3.7
photosite integration time	ISO 12232:2019, 3.10
PhysicalStorageID	ISO 15740:2013, 3.29
picture-referred image state	ISO 22028-1:2016, 3.34
pixel aspect ratio	ISO 12231-1:2020, 3.8
point spread function PSF	ISO 12233:2017, 3.21
portable network graphics PNG	ISO 15740:2013, 3.30
pre-capture point	ISO 15781:2019, 3.7
preferential attribute	ISO 20462-1:2005, 3.12
	ISO 20462-3:2012, 3.11

Table 1 *(continued)*

Term	Source of definition
scanner	ISO 16067-1:2003, 3.14
	ISO 16067-2:2004, 3.14
	ISO 21550:2004, 3.19
scanner opto-electronic conversion function scanner OECF	ISO 16067-1:2003, 3.15
	ISO 16067-2:2004, 3.15
	ISO 21550:2004, 3.20
scene (1)	ISO/TR 17321-2:2012, 2.15
	ISO 22028-1:2016, 3.35
	ISO/TS 22028-3:2012, 3.17
scene (2)	ISO 20462-1:2005, 3.18
	ISO 20462-3:2012, 3.16
scene analysis transform	ISO/TR 17321-2:2012, 2.16
scene analysis transform spectral limit	ISO/TR 17321-2:2012, 2.4
scene luminance ratio	ISO 14524:2009, 3.14
scene-referred image data	ISO/TR 17321-2:2012, 2.17
scene-referred image state	ISO 22028-1:2016, 3.36
	ISO/TS 22028-3:2012, 3.18
sensitivity setting	ISO 12232:2019, 3.13
session	ISO 15740:2013, 3.36
shooting rate	ISO 15781:2019, 3.5
shooting time lag	ISO 15781:2019, 3.2
shutter efficiency	ISO 516:2019, 3.6
shutter release time lag	ISO 15781:2019, 3.3
signal processing	ISO 12232:2019, 3.12
sine wave-based spatial frequency response s-SFR	ISO 12233:2017, 3.24.2
single exposure	ISO 12231-1:2020, 3.9
slow scan direction	ISO 16067-1:2003, 3.16
	ISO 16067-2:2004, 3.16
	ISO 21550:2004, 3.21
softcopy	ISO 3664:2009, 3.14
	ISO 22028-1:2016, 3.37
sound compression	ISO 12234-1:2012, 3.8
sound recording	ISO 12234-1:2012, 3.9
spatial frequency response SFR	ISO 12233:2017, 3.24
	ISO 16067-1:2003, 3.17
	ISO 16067-2:2004, 3.17
	ISO 21550:2004, 3.22
spectral pattern	ISO 16067-1:2003, 3.20.3
	ISO 16067-2:2004, 3.21.3
	ISO 21550:2004, 3.26.3