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Introduction

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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.

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Submission of Comments

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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	Commend (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
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Standard

ISO/DIS 18383

**Digital imaging — Specification
guideline for digital cameras**

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This document is circulated as received from the committee secretariat.

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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.

The committee responsible for this document is ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 18383:2015), which has been technically revised.

The main changes compared to the previous edition are as follows:

- [Annex B](#) was revised with taking the CIPA DCG-001: 2018, “Individual Guidelines for noting digital camera specifications on Number of pixels, Image file and Focal length of the lens” and ANSI/IS&T IT10.7000: 2015, “Digital Still Cameras – Guidelines for Reporting Pixel-Related Specifications” into account.
- Item 1, 2, 4 were revised in accordance with the revision of [Annex B](#).
- Item 3 was revised.
- Item 8 was revised with taking the newly published CIPA DCG-008-2022 “Guideline for Presentation Method of Shutter Speed on Digital Cameras” into account.
- The provision for item 24 was added as (f) magnification with taking the newly published CIPA DCG-002-2023 “Specification Guideline for Digital Cameras” into account.
- Item 48 was revised in accordance with progress in standardization of referenced ISO standard.
- New Note 1 was added in Annex [A.4.2](#) to explain the relation of AF standards; ISO15781, TS20490.

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

The digital still camera (DSC) marketplace continuously produces and promotes new and competitive cameras. Requiring that manufacturers produce DSCs with standard numerical specifications impedes the technical progress, interferes with fair market competition, hinders the sound development of the industry, reduces camera innovation, and limits the customer's choice. On the other hand, standardized definitions of a fundamental set of camera specifications can help consumers to choose, purchase, and use these cameras because they provide the information needed to understand and compare the numerical specifications offered by the manufacturers and, thus, contribute to the fair competition in the market.

The various fundamental features of DSCs have close relationships with other features, such as camera size or cost. Nonetheless, these features, their relationships, and their numerical values vary with time and technological evolution. Manufacturers design and build their cameras to numerical specifications that balance performance with their estimation of the competitiveness of the product in and the feedback from the marketplace.

This International Standard identifies a set of fundamental features that describe DSCs, along with their accepted definitions, measurements, and presentation methods, but it does not define nor specify numerical values for the features, functions for calculating these values, nor limiting values required for these features.

This International Standard is based on Reference [\[1\]](#) prepared by Camera and Imaging Products Association (CIPA).

Digital imaging — Specification guideline for digital cameras

1 Scope

This International Standard identifies a set of features that describes digital still cameras (DSCs), and it specifies their definitions, measurement methods, and presentation methods. This International Standard applies to DSCs designed and produced for and promoted to general consumers and need not be applied to those DSCs designed and produced to meet individual and special specifications agreed upon by particular business or industrial users and the manufacturer.

The presentation methods specified in this International Standard are intended for use as notations on camera bodies, on product packaging, on promotional materials for advertising and at the point of purchase, in electronic or printed catalogues and other materials, and in the relevant software.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 516, *Camera shutters — Timing — General definition and mechanical shutter measurements*

ISO 517, *Photography — Apertures and related properties pertaining to photographic lenses — Designations and measurements*

ISO 2720, *Photography — General purpose photographic exposure meters (photoelectric type) — Guide to product specification*

ISO 12232, *Photography — Digital still cameras — Determination of exposure index, ISO speed ratings, standard output sensitivity, and recommended exposure index*

ISO 12233, *Digital cameras — Resolution and spatial frequency responses*

ISO 14524, *Photography — Electronic still-picture cameras — Methods for measuring opto-electronic conversion functions (OECFs)*

ISO 15739, *Photography — Electronic still-picture imaging — Noise measurements*

ISO 15781, *Photography — Digital still cameras — Measuring shooting time lag, shutter release time lag, shooting rate, and start-up time lag*

ISO 17850, *Photography — Digital cameras — Geometric distortion (GD) measurements*

ISO 17957, *Photography — Digital cameras — Shading measurements*

ISO 18844, *Photography — Digital cameras — Image flare measurement*

ISO 19084, *Photography — Digital cameras — Chromatic displacement measurements*

ISO 19567-1, *Photography — Digital cameras — Texture reproduction measurements*

ISO 20087, *Photography — Digital still cameras — Battery life measurement*

ISO 20954-1, *Digital cameras — Measurement method for image stabilization performance — Part 1: Optical systems*

IEC 61747-6:2003, *Liquid crystal and solid-state display devices — Part 6: Measuring methods for liquid crystal modules — Transmissive type*

3 Terms and definitions

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

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/>

3.1 General terms relating to products

3.1.1

factory shipping conditions

factory shipping settings

factory shipping values

factory shipping mode

camera settings and parameters as configured by the manufacturer for shipping from the factory

3.1.2

primary notation

notation which describes feature name and value presented solely or most noticeably

3.2 Terms in Pixel Related Specifications (See Annex [B.2.1](#))

3.2.1

35 mm film equivalent focal length

measured focal length of a DSC camera lens multiplied by a normalization factor, as defined in Annex [B.2.1.5.11](#)

Note 1 to entry: The normalization factor is equal to the ratio of the diagonal length of the picture size used for 35 mm film photography and the diagonal length of the sensor picture size of the image sensor used in the DSC.

Note 2 to entry: 35 mm film equivalent focal length is an approximation of the film camera focal length that provides a similar field of view. However, the fields of view can be different even if the values are the same, if the DSC produces images having an image aspect ratio other than 3:2, or if the two lenses have different geometric distortions, or if geometric distortion compensation is used.

3.2.2

image area

region of an image sensor in the focal plane that captures the part of the incident image and that corresponds to the output image data

3.2.3

image compression

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

3.2.4

image data compression ratio

ratio of the size of the compressed image data to the size of the image data that was input to the image compression process

3.2.5

image file size

amount of data that comprises one image frame stored by a DSC, as defined in Annex [B.2.1.5.6](#)

3.2.6

number of effective pixels

number of photoelements included the image area, optionally also including the ring pixel area, as defined in Annex [B.2.1.5.2](#)

3.2.7

number of output pixels

number of luminance pixels comprising one picture frame which is output by the DSC via a cable or wireless connection

Note 1 to entry: Horizontal and vertical pixels should be reported separately in this order. (See, Annex [B.2.1.5.5](#)).

3.2.8

number of recorded pixels

number of luminance pixels comprising one picture frame stored by the DSC

Note 1 to entry: Horizontal and vertical pixels should be reported separately in this order. (See, Annex [B.2.1.5.4](#)).

3.2.9

number of total pixels (on the image sensor)

number of pixels in the image sensor array, including the total number of image sensor photoelements plus the number of optical black pixels, as defined in Annex [B.2.1.5.3](#)

3.2.10

output image

image created by a DSC through capture of an optical image by an image sensor followed by processing and then output through any communication means

3.2.11

pixel

contraction of picture element, smallest geometric unit of information in a digital representation of an image, corresponding to a single spatial sample

Note 1 to entry: For a single-channel (*e.g.*, monochrome) image, a pixel value can be represented as a single digital code value.

Note 2 to entry: The number of pixels in a digital image can be arbitrarily increased or decreased by resampling the image.

Note 3 to entry: It is common to also use the term pixel to mean a photoelement on an image sensor, a display element on an image display, or a printed element on a hardcopy print.

3.2.12

ring pixel

light-sensitive pixels in the image sensor of a DSC, that are outside of, and adjacent to the image area and are used for image processing

Note 1 to entry: Examples of image processing are demosaicing, noise reduction, and spatial filtering.

3.2.13

sensor optical format

classification of the sensor picture size of an image sensor, as defined in Annex [B.2.1.5.12](#)

3.2.14

sensor picture size

horizontal and vertical dimensions of the image area, where it is assumed that no geometric distortion compensation is used

Note 1 to entry: The sensor picture size gives the nominal physical dimensions of the rectangular image area frame of a camera. It can be used when calculating an equivalent focal length of the lens.

3.2.15

total number of image sensor photoelements

total number of light-sensitive pixels on the image sensor

4 Definition set of the product specifications of DSCs

4.1 Basic requirements

This International Standard does not mandate the inclusion and reporting of any features but provides a reference on what presentation methods and written expressions should be used for particular features. The requirements for the definition, measurement, and presentation of the set of DSC features established in this International Standard are described below. Note well that the requirements do not specify numerical values for any features that DSCs shall achieve. There are features included in this International Standard with the paradoxical statement, "This International Standard does not cover this feature." These features are commonly found on many cameras. They are included for completeness and to explicitly recognize that these features are only specified at the discretion of the manufacturer.

- a) When a feature is described on the product, in catalogues, or in other documents, the presentation method of the feature and its measured values shall comply with the following requirements:
 - 1) Features and their values with factory shipping settings or modes shall be presented as the primary notation of those features. The primary notation need not include the description of the setting and measurement conditions. When additional values with different settings are described, they shall include the details of the settings and measurement conditions.
 - 2) The descriptions of features and their values that are not available through factory shipping settings shall include the settings or modes that make these features available. Features available in multiple settings or modes shall be made available with the setting or mode that is assumed to be the most likely used and shall be presented if they affect the functionality.
 - 3) Features with no default parameters or modes in the factory shipping setting shall be assigned parameters or modes that are assumed to be the most likely used. They shall be presented if they affect the functionality.
 - 4) Exceptions to the priority on the factory shipping setting may be given to certain features defined in [4.2](#). They may be given when the above requirements are redundant or when the descriptions with the other settings, parameters, or modes give the users more accurate and definitive information.
- b) For cameras with interchangeable lenses, the presentation of any features affected by the choice of lens shall include information that identifies the lens (for instance, the model name of lens, type of lens) attached to the camera and that produces, requires, or otherwise affects that feature. The choice of the lens used in the specification of the feature is left to the discretion of the manufacturer.
- c) The reported numerical values of features shall be based on measurements using the actual camera and the standard methods of measurement and calculation. The values designed and verified by the manufacturer may be used when the feature does not have an established measurement and/or calculation method.
- d) Variations in names and expressions for features in this fundamental set of features, such as customary names and company-used names, may be used unless
 - 1) the standard explicitly requires a name or an expression;
 - 2) a variation in a name or expression could cause confusion with the name or expression of any other feature in the set of features in this standard;
 - 3) a variation in a name or an expression could cause a misunderstanding.
- e) Specific requirements explicitly stated for any particular feature of this set shall have precedence over any of these basic requirements.
- f) Regardless of the specified number of significant figures for each feature in the definition set, the number of decimal places may be omitted for integer values in the presentation.

EXAMPLE 4,0 times -> 4 times; 2,0 s -> 2 s; 2,0 m -> 2 m.

4.2 Definitions of specifications

4.2.1 General

[Tables 1](#) to [7](#) specify the definition, the measurement, and the presentation of a set of fundamental features of DSCs.

In the International Standards for individual features developed by ISO or CIPA, detailed ways of indicating specifications and various characteristics are presented; however, they tend to be too complicated for descriptions in catalogues and other materials for general consumers. Therefore, [Tables 1](#) to [7](#) give compact notations for individual features that are consistent with official standards and are presented with examples of notation.

The following are conventions used in [Tables 1](#) to [7](#).

- a) The notation {xxx} means that xxx may be omitted from the description.
- b) The notation [yyy | zzz] means that either yyy or zzz may be used in the description.
- c) The word “company” used in the “Specifications (Definitions)” column refers to any supplier of the DSC.
- d) The phrase “depress the shutter button” refers to the operation of fully pressing the shutter button as well as any other general means for starting exposure.

4.2.2 Optical system

[Table 1](#) specifies the definition, the measurement, and the presentation of a set of features for optical systems.

Table 1 — Definitions of specifications and presentation method for optical system

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
1	available focal length {of the lens}	Range of the available focal length of the lens, where the focal length is the distance along the optical axis between the secondary (back) principal point and the focal point when the lens is focused at infinity. Measurement method: — Shall comply with ISO 517. Presentation method — The value shall be reported in units of millimetres, and the focal length of the actual product shall be within +/- 5 % of the reported value. For DSCs which include a zoom lens, the minimum and — maximum focal lengths should be reported, regardless of the factory shipping values. Presentation examples: — 3,5 mm — 3,5 {mm} to 10,5 mm	— These items are mainly based on B.2.1.5.10. — For commonly used lenses, field of view can be calculated by the formula: $2 \times \arctan[\text{diagonal length of the sensor picture size} / (2 \times \text{focal length of lens})].$
2	available {35 mm film} equivalent focal length {of the lens}	Focal length of a digital camera lens converted into that of a 35 mm {film} camera lens Method for converting the focal length of a DSC lens to 35 mm {film} equivalent focal length: 35 mm {film} equivalent focal length = focal length of DSC lens $\times$ [diagonal length of the picture size of 35 mm film (43,27 mm)] / (diagonal length of the sensor picture size of the image sensor)	— “These items are mainly based on B.2.1.5.11. (See 3.2.1 also)

Table 1 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
		Presentation methods: — "35 mm {film} equivalent" or a term to describe it shall be used. — The value shall be reported in units of millimetres and may be rounded off (up on 5 and down on 4) to the nearest whole number or may be rounded with $\pm 2\%$. Notwithstanding the above provisions, only for the telephoto end of the zoom lens, the value may be calculated as follows: after determining the reported value of the widest-angle, multiplying the value by the reported value of the optical zoom magnification. — For DSCs with a zoom lens, the range of values provided by zooming may be listed, or the value of the widest angle may be listed along with the zoom range, regardless of the factory shipping setting. — When reporting the 35 mm film equivalent focal length of an interchangeable lens, the sensor picture size or the model of the DSC used to determine the value should be identified.	
3	available apertures {(f-numbers)}	Range of available apertures identified by their f-numbers (f/D), where f is the focal length of the lens and D is an available, effective aperture of the lens Presentation methods: — Presenting either the f-number of the fully open aperture alone or the range of available f-numbers (for a zoom lens) is acceptable. — When presenting a range of available apertures, the f-numbers for both the extreme wide angle of view and the extreme narrow (telephoto) angle of view shall be reported with the designations "(W)" and "(T)", respectively. In addition, the minimum f-number for the fully open aperture across the entire range of angles of view (focal lengths) shall be reported with the designation "(Min)". — When a neutral density filter has been used with the aperture, the equivalent f-number(s) may be reported with the designation "(ND)" or "(ND filter used)". The equivalent f-number is the f-number of the aperture without the neutral density filter, which applies the same light value as the aperture with the neutral density filter does. — When an f-number is reported that depends upon an unusual or particular feature of the DSC, the designation "(DSC-specific)" shall be used with a reporting of the dependent feature. Presentation examples: — F2.8 (W); F4.8 (T); F5.6 (Min) — F2.8 (W); 5,6 (Min); 4,8 (T) — F2.8 (W); F5.6 (T) (ND filter used)	— The reporting of f-numbers for available apertures shall comply with ISO 517 as outlined to the left and the items listed under "Presentation methods". — A clear or accurate measurement method in product form has not been established for DSCs with built-in lens.

Table 1 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
4	Zoom [ratio magnification]	— If the camera has only an optical zoom function, select description (b). — If the camera has only a digital zoom function, select description (c). — If the camera has both functions, the optical zoom function shall be reported with higher priority. — Regardless of the factory shipping values, available values of zoom magnification may be reported.	
	(a) [total combined] zoom [ratio magnification]	Available, maximum combined magnifications of the optical zoom and the digital zoom Presentation methods: — The optical zoom magnification shall be reported conspicuously. — The number of significant digits to be reported shall be two or more (round the value to the nearest decimal). — Regardless of the factory shipping values, available values of zoom magnification may be reported. Presentation examples: — 3x optical zoom (12x total zoom magnification) — 3x optical zoom (12x total zoom magnification, 4x by digital zoom) — 3x optical zoom, 4x by digital zoom (12x total zoom magnification)	
	(b) optical zoom [ratio magnification]	Available ratios of focal length of the lens at the extreme wide angle of view (W) and the extreme narrow (tele-photo) angle of view (T) Presentation methods: — The number of significant digits to be reported shall be two or more (round the value to the nearest decimal). — The value of the focal length shall be used in the calculation of optical zoom ratio. — Regardless of the factory shipping values, available values of zoom magnification may be reported. Presentation examples: — 3,8x — 5x	The measured “effective zoom ratio (by the ratio of the size of captured image)” at a measurable subject distance significantly differs from the real zoom ratio calculated from the real focal length for the subject at infinity, that is, at an extremely large distance.
	(c) digital zoom [ratio magnification]	Available ratios of the length of the diagonal of the sensor picture size without digital zoom to that with full digital zoom Presentation methods: — The number of significant digits to be reported shall be two or more (round the value to the nearest decimal). — The term “shooting digital zoom” may be shortened to “digital zoom” (refer to the feature 60). — Regardless of the factory shipping values, available values of zoom magnification may be reported. Presentation examples: — 3,5x — 5x	

Table 1 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
5	[focus shooting] [range distance]	Subject distance at which shooting results in an in-focus image of the subject The shortest shooting distance means the smallest subject distance that results in an in-focus image of the subject. The distance from the front surface of the lens or the distance from the effective image area of the image sensor shall be used. The manufacture may select either of the two distance, and which distance is selected shall be presented. Presentation methods: — For the AF mode, report the subject distances for which the AF function works, and for the MF mode, report the subject distances for which an in-focus image can manually be obtained at the most open aperture. — If the longest shooting distance is infinity, only the shortest shooting distance need be reported. — Regardless of the factory shipping values, available subject distance may be reported. The shooting mode (for example, macro mode) and/or the shooting conditions (for example, maximum wide-angle) that achieve the available subject distance shall be reported. — The conditions for the f-number of the lens are not specified, i.e. the shooting distance of any f-number can be reported. — The number of significant digits to be reported should be one or more for less than 1 m distance and two or more for 1 m or longer distance (round the value to the nearest decimal). Presentation examples: — 50 cm to ∞ (W); 1,5 m to ∞ (T) (from lens surface) — Shortest shooting distance 50 cm (W); 1,5 m (T) (from lens front) — 0,5 m to ∞ (W-end); 1,5 m to ∞ (T-end) (from effective image area) — 1 {cm} to 50 cm (W) (from lens surface when in macro mode)	
6	lens [construction configuration]	The number of components, for instance, lenses, elements, or groups of lenses, in a compound lens Presentation method: Manufacturers may use any expression (conventional or otherwise) to describe their lens construction and configuration. Presentation examples: — 14 elements in 10 groups (3 aspherical lenses, 1 low dispersion lens) — 7 elements in 6 groups (1 double-side aspherical lens, 1 set of cemented lens)	

4.2.3 Camera control system

[Table 2](#) specifies the definition, the measurement, and the presentation of a set of features for camera control systems.

Table 2 — Definitions of specifications and presentation method for camera control system

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
7	shutter type	Type of shutter mechanism Presentation method: The common expressions or designations of the relevant company may be used. Presentation examples: — Electronic system along with the mechanical shutter — Focal-plane shutter	
8	available shutter speeds {(exposure times)}	Range of available shutter speeds {(exposure times)} Presentation methods: — Available shutter speeds shall be reported in seconds. — Shutter speeds produced by any mode other than by the factory setting mode may be reported along with the shutter speeds with the factory setting mode. If the case, they shall include a designation of that particular mode. — The whole available shutter speeds may be reported along with the shutter speeds with the factory setting mode. If the case, a note that describes they are whole shutter speeds with all the available settings shall be presented. Shutter speed display values are specified as follows. — TV values -5 to 23 are specified in Table B.4 in B.3.1.2. — TV values 23 or higher are specified by the formula given later. — Times longer than TV-5 are not specified. In the case of shutter speeds for which the TV value is an integer, shutter speeds shall be indicated by numerical values specified to TV ± 0 in Table B.4 or numerical values that are calculated by the formula described later. In the case of shutter speeds for which the TV value is not an integer and that are indicated by an integer $\pm 1/3$ or an integer $+1/2$, shutter speeds should be indicated by numerical values specified to TV-1/3, TV+1/3 or TV+1/2 in Table B.4 or numerical values that are calculated by the formula described later. Either of the numerical values may be used for shutter speed display values for which multiple numerical values are given in Table B.4. Example: Either of “0.5” or “1/2” may be used as the shutter speed display value of TV = 1. When performing indication with the numerator omitted (e.g. “1/4” indicated as “4”), the indication can sometimes be confused with shutter speed display values longer than one second, and so confusion should be avoided by, for example, changing the indication color (same as ISO 516 provisions). Abbreviated indication may be used for numerical values having many digits. For details on abbreviated indication, see B.3.1.3. The formulas described in B.3.1.4 are used to calculate faster shutter speed display values outside the ranges in Table B.4. Presentation examples:	The reporting of available shutter speed shall comply with ISO 516 as outlined to the left and the items listed under “Presentation methods”. Since ISO 516 does not specify any presentation method other than 1 step value, CIPA DCG-008 provides the details. CIPA DCG-008 is listed in B.3.1 These items are an outline of the materials in B.3.1.

Table 2 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
		— 1 {second} to 1/2 000 second, 15 {seconds} to 1 s (long shutter mode) — 1/2 000 {second} to 8 seconds (automatic), 60 seconds at maximum (bulb mode) — 1 {second} to 1/1 500 second (automatic mode), 15 {second} to 1/1 500 second (throughout all shooting modes)	
9	[light exposure] metering [system mode]	Metering system and modes of exposure control Presentation methods: — The customary expressions or designations of the relevant company may be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — Regardless of the factory shipping conditions, any metering system and modes used for available exposure control may be reported. Presentation examples: — TTL open-aperture metering — Centre-weighted metering — Spot metering — Multiple pattern metering — Evaluative metering	
10	available exposure [mode control]	Available exposure control system and modes Presentation methods: — The common expressions or designations of the relevant company may be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — A description of this feature may be included in the feature 16 “shooting mode”. — Any available systems and modes of exposure control may be reported in addition to the factory shipping mode. Presentation examples: — Program AE — Shutter (speed) priority AE — Aperture priority AE — Manual exposure	
11	range of available effective subject brightness values	Range of subject brightness (luminance) that allows the user to shoot practically exposed image without using a flash The brightness value is the binary logarithm of a luminance representative of the scene, B, multiplied by a standard exposure time t_o of one second and divided by an exposure meter constant K_s in the range $10,6 \text{ cd s m}^{-2}$ to $13,4$ based on information in ISO 2720. $BV = \log_2(B t_o / K_s)$	The definition of what constitutes a “practical exposure” is left to the discretion of the manufacturer.

Table 2 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
		Presentation methods: — The minimum and maximum luminances operationally available and the available increment(s) that determine intermediate adjustments shall be reported as brightness values with the prefix “BV”. — The DSC shall be set to the factory shipping conditions with flash trigger prohibited. If it is not possible to prohibit the flash from being triggered, the value should be evaluated with the subject at a distance that is too far for the flash beam to reach the subject.	
		— The available range values may be reported together or in primacy to the value with the factory setting mode. The available range of values shall present a note that describes they are combined values with all the available settings. — If any value available in modes other than the factory shipping mode is also reported, the shooting mode to which the value applies shall also be reported. Presentation example: — BV3 to 13 (W), BV4 to 14 (T)	
12	range of available exposure settings	Range of exposures controllable by available settings available of the lens aperture and of the shutter speed Presentation methods: — The extreme values of the available exposure settings (values) shall be reported as a sum of the binary logarithm of an f-number of the aperture and the binary logarithm of a shutter speed expressed in seconds; $EV = AV + TV$ $AV = \log_2(f\text{-number})^2$ $TV = \log_2(t_0/t)$ $= -\log_2(\text{exposure time})$ Where t is the shutter speed expressed in seconds (= exposure time), t_0 is the nominal shutter speed: one-second, which cancels the units of time (seconds) of the shutter speed expressed in seconds. — The available range values may be reported together or in primacy to the value with the factory setting mode. The available range values shall present a note that describes they are combined values with all the available settings. — When exposure settings (values) produced by modes other than the factory shipping mode, are reported, the modes that produce those values shall also be reported. Presentation examples: — EV 6 to 16 (W), EV 7 to 17 (T) — EV 3 to 17 (W), EV 4 to 18 (T) (shooting mode: P)	

Table 2 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
13	exposure compensation	Available range and step size of the exposure compensation feature Presentation methods: — The range of steps shall be reported as $\pm$ followed by the magnitude of the range in stops (powers of two) and followed by “stops” or “EV”. — The step size shall be in stops followed by “stop” or “EV” and the word “steps” all enclosed in parentheses. — When the DSC is not equipped with exposure compensation, the value shall be reported as “none” or as “0”. Presentation examples: — ± 2 stops (1/3 stop steps) — ± 2 EV (1/3 EV steps)	
14	focus [system mode type]	Available system and modes of focus control Presentation methods: — The common expressions or designations of the relevant company may be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — Regardless of the factory shipping conditions, any available system and modes of focus control may be reported. Presentation examples: — Central one-point AF — Multiple point AF (9 points) — 9-points AF — Manual focusing — One-shot AF — TTL phase difference detection system (Manual focusing, One-shot AF, Continuous AF)	
15	white balance [system mode control]	Available modes that control multiple DSC settings whose values are generally used to capture scenes in a particular type of light Presentation methods: — The names of any modes placed on the DSC by the manufacturer shall be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — An explanation of any listed mode may be included. Presentation examples: — Auto, Fine, Cloudy, Fluorescent, Incandescent, Flash, Set mode, Manual — Pre-set (Sunlight, Cloudy, Fluorescent, Incandescent, Flash)	

Table 2 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
16	[scene shooting] [mode controls]	Available modes that control multiple DSC settings whose values are generally used to capture a type of scene Presentation methods: — The names of any modes placed on the DSC by the manufacturer shall be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — An explanation of any listed mode may be included. Presentation example: — Normal, Easy shooting, Macro, Portrait, Sports, Nightscape, Night-scene portrait, Fireworks, Snow, Starry sky	May be broadly interpreted to mean exposure control mode.
17	blur suppression	Function to suppression of "camera shake" or "subject shake" by some means of control within a camera. Generic term for (1) image stabilization during exposure and aiming and (2) blur reduction during exposure Presentation methods: — If the function has either one of (a) image stabilizer or (b) blur reduction, "image stabilizer" or "blur reduction" shall be used: "blur suppression" shall not be used. — The term "blur" may be replaced with other expressions such as "camera shake" or "subject motion", if necessary.	— Image stabilizer and blur reduction shall not be confused, as their technical aspects differ greatly. — Detailed explanations of blur suppression including examples of the classification are provided in Annex C.5.
	(a) image stabilizer	Method of correction and/or suppression of blur in the output image caused by the motion of the digital camera body (camera shake, etc.) and/or the motion of the subject by using the output of the blur detection means. However, a technique is assumed to be a "blur reduction" system mentioned in (b) below if it only takes pictures in high-speed shutter mode by optimizing the exposure control program, even if it employs the output of a blur detection means, and if the technique does not show significant improvement in stabilized output images. Presentation methods: — The system name, such as optical system, electronic system, hybrid system; mode name shall be indicated. — The system name, mode name and other data may follow the customary terms or designations of the relevant company, as long as that does not cause misunderstanding. — If hybrid system uses different system, optical system and electronic system, individually by the axes*1, the fact shall be explicitly stated. — If the system of the still shooting mode and the system of the movie clip mode are different from each other, the fact shall be explicitly stated.	(1) Optical system includes the following: — lens shift system — imaging sensor shift system (2) Electronic system includes the following: — system that processes images adaptively based on blur information detected from the blur of images by taking more than one shot. — system that processes images and restore images using blur function or inverse filter based on detected blur information (3) Hybrid system means a combination of optical and electronic systems. *1 rotating directions, upper/lower directions, right/left directions, and so on.

Table 2 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
		— Not only the factory shipping conditions, but also any image stabilizing mode available may be indicated. Presentation examples: — Optical system — Electronic system — still shooting mode: Hybrid system/ movie clip mode: Electronic system — still shooting mode: optical system/ movie clip mode: hybrid system — still shooting mode: two axes: yaw and pitch/ movie clip mode: five axes: yaw and pitch by optical system; upper/under directions, right/ left directions, and rotating directions by electronic system	
	(b) blur reduction {mode}	Function or mode that reduces the blur of output images caused by either subject motion or camera shake primarily by shooting in high-speed shutter mode by optimizing the exposure control program. Presentation methods: — The function names, mode names and other descriptions may follow the customary terms or designations of the relevant company, as long as that does not cause misunderstanding. — Independent description of this function as a blur reduction function or mode is allowable, although this function is a kind of exposure control mode or sensitivity control mode. — Not only the factory shipping conditions, but also any blur reduction mode available may be indicated. — Blur reduction mode — Blur reduction function	

4.2.4 Key components

[Table 3](#) specifies the definition, the measurement, and the presentation of a set of features for key components.

Table 3 — Definitions of specifications and presentation method for key components

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
18	flash	Defines if a camera has a built-in flash or defines if an external auxiliary flash can be mounted Where a flash means a light source which emits a flash of light Presentation methods: — The common expressions or designations of the relevant company may be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — If the camera accepts the mounting of an external flash, it is recommended to report examples of available flash units. Presentation example: — Built-in-flash: Auto, Auto/Red-Eye Reduction, Forced-On, OFF — External flash can be mounted	
19	{built-in} flash mode	Available flash modes Presentation methods: — The common expressions or designations of the relevant company may be used, as long as such expressions or designations are defined in either a published standard or in the literature supplied by the company and shipped with the DSC. — Regardless of the factory shipping conditions, applicable flash modes may be reported. Presentation example: — Auto, Forced flash, Suppressed flash, Automatic red eye reduction, Slow sync.	
20	{built-in} flash {working} range	Range of subject distances that allows the user to get an image with practically correct exposure with only the flash illumination This International Standard does not cover this item.	— To determine the flash range means to determine an acceptable image quality limit. It is impossible to determine uniformly what an acceptable picture quality is, as it varies greatly depending on the shooting scene (subject), viewer's personal taste and feeling, type of DSC, etc. — Accordingly, it is inappropriate to specify an acceptable picture quality uniformly in International Standard; it should be left to the discretion of each supplier and the market.

Table 3 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
21	{built-in} flash guide number	Amount of flash light Presentation methods: — The value shall be reported in units of meters (m) — The value may be reported (as is customary) without explicit units (meters or m). — The value of the primary notation shall be calculated for ISO 100. — Values calculated for other ISO speeds may be reported. Presentation examples: — Gno.7 (ISO 100• m), Gno.14 (ISO 400• m) — Gno.7 — GN7, GN14 (ISO 400• m)	
22	image sensor	Classification and size of image sensor	
	(a) [system type]	Classification of image sensor (type, system, etc.) Presentation method: — Common expressions and designations of the manufacturer may be used. Presentation examples: — CCD — CMOS sensor	
	(b) size	Size of image sensor Presentation method: — Common expressions and designations of the manufacturer may be used. Presentation examples: — 1/2,5 type — 36 {mm} × 24 mm — 35 mm format film size — APS-C	Some examples of notation are given in CIPA DCG-001.
23	{picture} [monitor] display	Characteristics of monitor or display	
	(a) [system type]	Type of picture monitor Presentation methods: — Common expressions and designations of the manufacturer may be used. — In case of a monochrome monitor, it shall explicitly be reported. Presentation examples: — Transflective TFT liquid crystal display — TFT liquid crystal display — OLED	

Table 3 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
	(b) image size	Image size on the {picture LCD} monitor, where the size means the dimensions of the area excluding all sections that do not contribute to the display of images or characters Presentation method: — Common expressions and designations of the manufacturer may be used. Presentation examples: — 2,5 type — 75 mm diagonally — 7,5 cm diagonally	
	(c) {number of} [pixels dots]	Number of effective pixels or dots of the {picture LCD} monitor, where the number means the effective pixels or dots of the area excluding all sections that do not contribute to the display of images or characters The relationship between the number of pixels and the number of dots is: three dots of consecutive R, G and B dots constitute one pixel in a display by three primary colours, R, G and B. (refer to IEC 61747-1) Presentation methods: — The number of significant digits to be reported shall be two or more (round off the value to the nearest decimal). — It is recommended to report the value in units of 10 000 in Japanese, and in units of 1 000 (or k) in English. Presentation examples: — 215 k dots — 72 k pixels	
	(d) [defect defective {pixels}]	Pixels that do not illuminate according to the received signals as they should normally do, or more specifically, those pixels that significantly differ in output from the other pixels so that the user can clearly perceive the defect	

Table 3 (continued)

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
	(e) maximum luminance	Monitor brightness (luminance) when the maximum signals (255 in the case of an eight-bit digital signal) are given in a white window pattern This characteristic reflects the conditions found in a darkroom; The provision of this item shall be limited only to the standard measurement method in the darkroom condition in which the luminance on the measured surface is not affected by any external light. (This International Standard does not define the maximum luminance in different environments.) Measurement method: Shall comply with IEC 61747-6, 5. Presentation methods: — If the DSC has a brightness adjustment function, set the brightness to the maximum. — Reflective-type monitors are out of scope of this item. — The number of significant digits to be reported shall be two or more (round the value to the nearest decimal). Presentation example: — 210 cd/m² or higher	— The same measurement method is provided in the JEITA standard, EIAJ ED-2522, 5.9. — This performance expresses the characteristics in the darkroom condition; it does not express characteristics in various environments. — The luminance of a liquid crystal display has a trade-off relationship with other liquid crystal display characteristics (contrast, colour reproduction characteristics, reflectance, etc.).
	(f)  coverage field of view	— When displaying a recorded image: Percentage of the dimensions of the recorded image shown on the display — When displaying the scene for shooting: Percentage of the dimensions of the output image shown on the display Presentation methods: — Two values in the width (horizontal) and height (vertical) directions shall be reported respectively; however, in the case that the difference in the monitor coverage between the horizontal and vertical directions is small, the two values may be unified into one, using the root-mean-square (rms) of the values for the two directions. — Use the values on the centreline of the image (the width monitor coverage is defined on the horizontal line at the vertical centre and the height monitor coverage is defined on the vertical line at the horizontal centre). — The mode to which the values apply shall be reported when the monitor coverage values of the playback image mode and of the shooting image mode differ. — The number of significant digits to be reported shall be two or more (round the value to the nearest decimal). Presentation examples: — 96 % — Approximately 100 % — 97 % (for shooting), 100 % (for displaying) — 98 % (horizontal), 100 % (vertical)	