



International
Standard

ISO 18383

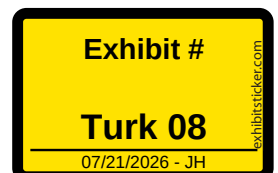
**Digital imaging — Specification
guideline for digital cameras**

*Imagerie numérique — Ligne directrice de spécification pour
caméras numériques*

**Second edition
2025-10**

Reference number
ISO 18383:2025(en)

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Published in Switzerland

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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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

The main changes 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 [A.4.2](#) to explain the relation of AF standards; ISO 15781, ISO/TS 20490.

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 document 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 document is based on Reference [1] prepared by Camera and Imaging Products Association (CIPA).

Digital imaging — Specification guideline for digital cameras

1 Scope

This document identifies a set of features that describes digital still cameras (DSCs), and it specifies their definitions, measurement methods, and presentation methods. This document 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 document 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 terminology 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 [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

Note 1 to entry: This is defined in [B.2.1.5.11](#).

Note 2 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 3 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* ([3.2.3](#)) process

3.2.5

image file size

amount of data that comprises one image frame stored by a DSC

Note 1 to entry: This is defined in [B.2.1.5.6](#).

3.2.6

number of effective pixels

number of photoelements included the *image area* (3.2.2), optionally also including the ring pixel area.

Note 1 to entry: This is defined in [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, [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 [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

Note 1 to entry: This is defined in [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* (3.2.2) 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

Note 1 to entry: This is defined in [B.2.1.5.12](#).

3.2.14

sensor picture size

horizontal and vertical dimensions of the *image area* (3.2.2), 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 document 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 document 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 document with the paradoxical statement, "This document 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 documents 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 and requirements for specifications (definitions) and presentation	Remarks
1	available focal length {of the lens}	<p>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.</p> <p>Measurement method:</p> <ul style="list-style-type: none"> — Shall comply with ISO 517. <p>Presentation method</p> <ul style="list-style-type: none"> — The value shall be reported in units of millimetres, and the focal length of the actual product shall be within $\pm 5\%$ of the reported value. <p>For DSCs which include a zoom lens, the minimum and maximum focal lengths should be reported, regardless of the factory shipping values.</p> <p>Presentation examples:</p> <ul style="list-style-type: none"> — 3,5 mm — 3,5 {mm} to 10,5 mm 	<ul style="list-style-type: none"> — 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}	<p>Focal length of a digital camera lens converted into that of a 35 mm {film} camera lens</p> <p>Method for converting the focal length of a DSC lens to 35 mm {film} equivalent focal length:</p> <p>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)</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — "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 $\pm 2\%$. <p>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.</p> <ul style="list-style-type: none"> — 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. 	<ul style="list-style-type: none"> — "These items are mainly based on B.2.1.5.11. (See 3.2.1 also)

Table 1 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
3	available apertures {(f-numbers)}	<p>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</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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. <p>Presentation examples:</p> <ul style="list-style-type: none"> — 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) 	<ul style="list-style-type: none"> — 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.
4	Zoom [ratio magnification]	<ul style="list-style-type: none"> — 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]	<p>Available, maximum combined magnifications of the optical zoom and the digital zoom</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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. <p>Presentation examples:</p> <ul style="list-style-type: none"> — 3× optical zoom (12× total zoom magnification) — 3× optical zoom (12× total zoom magnification, 4× by digital zoom) — 3× optical zoom, 4× by digital zoom (12× total zoom magnification) 	

Table 1 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
	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 (telephoto) 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: — 3,8× — 5×	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: — 3,5× — 5×	
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.	

Table 1 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>— The conditions for the f-number of the lens are not specified, i.e. the shooting distance of any f-number can be reported.</p> <p>— 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).</p> <p>Presentation examples:</p> <p>— 50 cm to ∞ (W); 1,5 m to ∞ (T) (from lens surface)</p> <p>— Shortest shooting distance 50 cm (W); 1,5 m (T) (from lens front)</p> <p>— 0,5 m to ∞ (W-end); 1,5 m to ∞ (T-end) (from effective image area)</p> <p>— 1 {cm} to 50 cm (W) (from lens surface when in macro mode)</p>	
6	lens [construction configuration]	<p>The number of components, for instance, lenses, elements, or groups of lenses, in a compound lens</p> <p>Presentation method:</p> <p>Manufacturers may use any expression (conventional or otherwise) to describe their lens construction and configuration.</p> <p>Presentation examples:</p> <p>— 14 elements in 10 groups (3 aspherical lenses, 1 low dispersion lens)</p> <p>— 7 elements in 6 groups (1 double-side aspherical lens, 1 set of cemented lens)</p>	

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 and requirements 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	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 and requirements for specifications (definitions) and presentation	Remarks
		<p>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.</p> <p>Either of the numerical values may be used for shutter speed display values for which multiple numerical values are given in Table B.4.</p> <p>Example: Either of “0.5” or “1/2” may be used as the shutter speed display value of TV = 1.</p> <p>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).</p> <p>Abbreviated indication may be used for numerical values having many digits. For details on abbreviated indication, see B.3.1.3.</p> <p>The formulas described in B.3.1.4 are used to calculate faster shutter speed display values outside the ranges in Table B.4.</p> <p>Presentation examples:</p> <ul style="list-style-type: none"> — 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]	<p>Metering system and modes of exposure control</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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. <p>Presentation examples:</p> <ul style="list-style-type: none"> — TTL open-aperture metering — Centre-weighted metering — Spot metering — Multiple pattern metering — Evaluative metering 	
10	available exposure [mode control]	<p>Available exposure control system and modes</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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. 	

Table 2 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>— A description of this feature may be included in the feature 16 “shooting mode”.</p> <p>— Any available systems and modes of exposure control may be reported in addition to the factory shipping mode.</p> <p>Presentation examples:</p> <ul style="list-style-type: none"> — Program AE — Shutter (speed) priority AE — Aperture priority AE — Manual exposure 	
11	range of available effective subject brightness values	<p>Range of subject brightness (luminance) that allows the user to shoot practically exposed image without using a flash</p> <p>The brightness value is the binary logarithm of a luminance representative of the scene, B, multiplied by a standard exposure time t_0 of one second and divided by an exposure meter constant K_s in the range 10,6 cd s m⁻² to 13,4 based on information in ISO 2720.</p> $BV = \log_2(B t_0 / K_s)$ <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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 definition of what constitutes a “practical exposure” is left to the discretion of the manufacturer.
		<p>— 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.</p> <p>— 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.</p> <p>Presentation example:</p> <ul style="list-style-type: none"> — BV3 to 13 (W), BV4 to 14 (T) 	
12	range of available exposure settings	<p>Range of exposures controllable by available settings available of the lens aperture and of the shutter speed</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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; $EV = AV + TV$ $AV = \log_2(f\text{-number})^2$ $TV = \log_2(t_0/t)$ $= -\log_2(\text{exposure time})$ <p>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.</p>	

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Table 2 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>— 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.</p> <p>— 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.</p> <p>Presentation examples:</p> <p>— EV 6 to 16 (W), EV 7 to 17 (T)</p> <p>— EV 3 to 17 (W), EV 4 to 18 (T) (shooting mode: P)</p>	
13	exposure compensation	<p>Available range and step size of the exposure compensation feature</p> <p>Presentation methods:</p> <p>— 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”.</p> <p>— The step size shall be in stops followed by “stop” or “EV” and the word “steps” all enclosed in parentheses.</p> <p>— When the DSC is not equipped with exposure compensation, the value shall be reported as “none” or as “0”.</p> <p>Presentation examples:</p> <p>— ± 2 stops (1/3 stop steps)</p> <p>— ± 2 EV (1/3 EV steps)</p>	
14	focus [system mode type]	<p>Available system and modes of focus control</p> <p>Presentation methods:</p> <p>— 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.</p> <p>— Regardless of the factory shipping conditions, any available system and modes of focus control may be reported.</p> <p>Presentation examples:</p> <p>— Central one-point AF</p> <p>— Multiple point AF (9 points)</p> <p>— 9-points AF</p> <p>— Manual focusing</p> <p>— One-shot AF</p> <p>— TTL phase difference detection system (Manual focusing, One-shot AF, Continuous AF)</p>	

Table 2 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
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)	
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 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:	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.

Table 2 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<ul style="list-style-type: none"> — 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. — Not only the factory shipping conditions, but also any image stabilizing mode available may be indicated. <p>Presentation examples:</p> <ul style="list-style-type: none"> — 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 	<ul style="list-style-type: none"> — system that processes images and restore images using blur function or inverse filter based on detected blur information <p>3) Hybrid system means a combination of optical and electronic systems.</p> <p>*1 rotating directions, upper/ lower directions, right/ left directions, and so on.</p>
	b) blur reduction {mode}	<p>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.</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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 and requirements for specifications (definitions) and presentation	Remarks
18	flash	<p>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</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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. <p>Presentation example:</p> <ul style="list-style-type: none"> — Built-in-flash: Auto, Auto/Red-Eye Reduction, Forced-On, OFF — External flash can be mounted 	
19	{built-in} flash mode	<p>Available flash modes</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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. <p>Presentation example:</p> <ul style="list-style-type: none"> — Auto, Forced flash, Suppressed flash, Automatic red eye reduction, Slow sync. 	
20	{built-in} flash {working} range	<p>Range of subject distances that allows the user to get an image with practically correct exposure with only the flash illumination</p> <p>This document does not cover this item.</p>	<ul style="list-style-type: none"> — 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.

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Table 3 (continued)

No.	Features	Guidelines and requirements 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 and requirements 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 and requirements for specifications (definitions) and presentation	Remarks
	e) maximum luminance	<p>Monitor brightness (luminance) when the maximum signals (255 in the case of an eight-bit digital signal) are given in a white window pattern</p> <p>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 document does not define the maximum luminance in different environments.)</p> <p>Measurement method: Shall comply with IEC 61747-6:2003, Clause 5.</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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). <p>Presentation example:</p> <ul style="list-style-type: none"> — 210 cd/m² or higher 	<ul style="list-style-type: none"> — 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	<ul style="list-style-type: none"> — 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 <p>Presentation methods:</p> <ul style="list-style-type: none"> — 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). <p>Presentation examples:</p> <ul style="list-style-type: none"> — 96 % — Approximately 100 % — 97 % (for shooting), 100 % (for displaying) — 98 % (horizontal), 100 % (vertical) 	

Table 3 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
	g) brightness [adjustment control] function	<p>A function of {automatic} brightness [adjustment control] that adjusts the brightness of the [monitor display] {to the ambient illumination}</p> <p>Presentation methods (if the function is provided):</p> <ul style="list-style-type: none"> — 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 modes of brightness control function may be reported. <p>Presentation examples:</p> <ul style="list-style-type: none"> — Brightness control — Auto power monitor mode/ Power monitor mode — Intelligent LCD mode/ Power LCD mode 	
24	viewfinder	Characteristics of the viewfinder	For an electronic viewfinder, details that are not described in the feature 24 should conform to the feature 23.
	a) [system type]	<p>Type of viewfinder</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — Common expressions and designations of the manufacturer may be used. — In case of a monochrome viewfinder, it shall explicitly be reported. <p>Presentation examples:</p> <ul style="list-style-type: none"> — Optical viewfinder — Viewfinder of single-lens reflex camera optics — Liquid crystal EVF — TFT monochrome liquid crystal viewfinder 	
	b) [{picture} coverage field of view]	<p>Percentage of the dimensions of the image seen in the viewfinder to the range of the output image</p> <p>Use the values on the centreline of the image seen in the viewfinder. (The width viewfinder coverage is defined on the horizontal line at the vertical centre and the height viewfinder coverage is defined on the vertical line at the horizontal centre.)</p> <p>Measurement method:</p> <ul style="list-style-type: none"> — The view point shall be set at the centre at measuring. 	

Table 3 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>Presentation methods:</p> <ul style="list-style-type: none"> — If the difference in the viewfinder coverage between the horizontal and vertical directions is large, it is recommended to report two values in the width (horizontal) and height (vertical) directions, respectively "n_h/N_h" and "n_v/N_v". (Report the values of the two directions using a one-dimensional expression.) <p>See the drawings below.</p> <ul style="list-style-type: none"> — If the difference in the viewfinder 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. — If the value changes greatly by zooming, it is recommended to report both the values at two points of the maximum telephoto (T) position and maximum wide angle (W). — If the range of output image is smaller than the range that is seen in the viewfinder, then the expression of the viewfinder coverage will exceed the value of 100 %. In such cases, it is recommended to state the range of output image expressly. — The subject should be at the distance of 3 m in principle. If the value at a distance other than 3 m is to be reported, then that distance shall be reported together. — The number of significant digits to be reported shall be two or more (round the value to the nearest decimal). <p>Presentation examples:</p> <ul style="list-style-type: none"> — 93 % — Horizontal: 85 %; vertical: 96 % — 80 % (W), 90 % (T) 	
	c) parallax	<p>Displacement between the centre of visual field and that of the output image in the vertical and horizontal directions</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — Subject distance for the measurement shall be reported, yet this document does not specify it. — Express the displacement as a ratio (%) of the number of displaced pixels in the horizontal "d_h" and vertical directions "d_v" to that of pixels of the output image in the corresponding directions "N_h and N_v". See the drawings below. 	
	d) [dioptré dioptric] adjustment	<p>Defines if a camera is provided with a viewfinder adjustment function (mechanism) or not</p> <p>Presentation methods (if the function is provided):</p> <ul style="list-style-type: none"> — It is recommended to report its adjustment range together (only the range may be reported, suggesting that the function is provided). — Report the adjustment range in units of m^{-1}, with the positive and negative signs (+, -) relative to the reference dioptré scale. <p>Presentation example:</p> <ul style="list-style-type: none"> — Dioptré scale adjustment range $-3 m^{-1}$ to $+1 m^{-1}$ 	

Table 3 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
	e) [eye point eye relief]	<p>The position where the user can see the entire area of the image and all the information displayed in the viewfinder</p> <p>Express as the maximum distance from the “position closest to the photographer out of the structural components around the camera's eyepiece frame” or the “rear end of the camera's eyepiece including the protective glass” to the “position at which the pupil can see all screen images and all information in the viewfinder”.</p> <p>Further, move the distance from the “position closest to the photographer out of the structural components around the camera's eyepiece frame” may be defined in a state where any structural components removable from the camera's eyepiece frame such as the eyecup, are removed.</p> <p>Presentation methods:</p> <p>— It shall be expressly reported which value is used out of the above two values for the maximum distance, unless “the position closest to the photographer out of the structural components around the camera's eyepiece frame” is used.</p> <p>— The number of significant digits to be reported shall be one or more for a distance shorter than 10 mm, and two or more for a distance of 10 mm or longer (round the value to the nearest decimal).</p> <p>Presentation example:</p> <p>— eye point 21 mm (from the rear end of the camera's eyepiece)</p>	<p>(Recommended) measurement method:</p> <p>— Place a shield of the light that has a pinhole with a diameter of 2 mm or smaller between the viewfinder and the observer on the optical axis of the viewfinder, and move the pinhole along the optical axis of the viewfinder until the observer can see the entire area of the image and all information in the viewfinder.</p> <p>Then take the position of the pinhole as the “position at which the pupil can see the entire area of the image and all information in the viewfinder”.</p>
	f) magnification	<p>Ratio of the angle of emergence from the viewfinder optical system relative to the angle of incidence to the objective optical system (angular magnification) when viewing the subject using the viewfinder through the shooting system</p> <p>The standard position of the subject shall be infinity and the standard dioptré shall be $-1,0 \text{ m}^{-1}$.</p> <p>Method to calculate by the following formula</p> <p>When the angle of incidence is θ and the angle of emergence is θ'</p> $\text{Magnification} = \tan\theta' / \tan\theta$ $\tan\theta = h_o / f_o, \tan\theta' = h_p / f_e$ <p>f_o: Focal length of the objective optical system (lens placed in position)</p> <p>f_e: Focal length of the VF eyepiece</p> <p>h_o: Length of image on the image sensor</p> <p>h_p: Length of image on the EVF panel or viewfinder screen</p> <p>Presentation method</p> <p>— There are two types of focal length in the objective optical system, including use of 35 mm film equivalent 50 mm lens and the actual focal length.</p>	<p>The value when using 35 mm film equivalent 50 mm can be converted from the value when using an actual focal length 50 mm lens and from the size of the image sensor.</p> <p>(“2 35 mm {film} equivalent focal length {of the lens}” includes description of the conversion method.)</p> <p>Focal length of a 35 mm film equivalent 50 mm lens = actual focal length of the 50 mm lens used $\times$ (product picture size / 35 mm film picture size)</p>

Table 3 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>— The value with a 35 mm film equivalent 50 mm lens shall be required and the value with an actual focal length lens may also be indicated. However, they can be indicated in any order.</p> <p>— Although the focal length of the lens used shall be indicated, it may be omitted when using a 35 mm film nominal focal length 50 mm and 35 mm film equivalent focal length 50 mm lens.</p> <p>— Setting conditions may be omitted when they are as described in the definition: Subject; Infinity, Dioptré; -1,0 m⁻¹.</p> <p>Setting conditions shall be indicated when they differ from the definition.</p> <p>Presentation examples (Example 1) Sensor picture size; APS-C — 0,70× (35 mm film equivalent 50 mm lens) 1,07× (50 mm lens) (Example 2) Sensor picture size; 35 mm film — Approximately 0,76× (50 mm lens) (Example 3) Sensor picture size; 44 x 33 mm — Approximately 0,85× (75 mm F2.8 lens) Approximately 0,77× (35 mm film equivalent 50 mm lens) Examples of abbreviated presentation (Abbreviated presentation examples of example 1) — 0,70× (35 mm equivalent 50 mm lens) 1,07× (50 mm lens) — 0,70× (35 mm equivalent), 1,07× (Abbreviated presentation examples of example 2) — Approx. 0,76× (50 mm lens) — Approx. 0,76× (Abbreviated presentation examples of example 3) — Approx. 0,85× (75 mm lens), Approx. 0,77× (35 mm equivalent)</p>	<p>No conversion is required when using a camera with sensor picture size; 35 mm film.</p> <p>Even when the setting conditions are as described in the definition, Subject; Infinity and Dioptré; -1,0 m⁻¹ may be indicated.</p>

4.2.5 Recording system

Table 4 specifies the definition, the measurement, and the presentation of a set of features for recording system of DSCs.

Table 4 — Definitions of specifications and presentation method for recording system

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
25	[recording storage] capacity	<p>Total number of images that can be stored in the recording media</p> <p>Presentation methods:</p> <p>The following conditions, which are closely related to the number of output images, shall be reported.</p> <ul style="list-style-type: none"> — The number of output pixels (including the aspect ratio, if necessary) — Compression mode (fine, standard, normal, etc.) — The type of recording media used (xD, CF, SD, MS, built-in memory in the body of the DSC, etc.) and its nominal capacity — Nominal capacity (In the case of recording to the built-in memory in the body of the DSC, the capacity available only for recording images shall be reported.) — The number of images recordable in shooting modes other than in the factory shipping setting may be reported, but in this case report in what shooting modes the number is available. — It is recommended to include comments such as “value for reference only”, “minimum value”, or “depends on the subject”. — The designation and details of compression mode are left to the discretion of the relevant company. 	
26	recording time for continuous movie capture	<p>Time duration of recording motion pictures continuously (the time duration until continuous shooting is stopped, regardless of the cause)</p> <p>Measurement method:</p> <ul style="list-style-type: none"> — Shall comply with the method of measuring battery life for continuously shooting motion pictures for DSC described in A.4.1. <p>Presentation methods:</p> <ul style="list-style-type: none"> — The following factors that stop continuous shooting are to be stated: <ul style="list-style-type: none"> — limit due to rise in temperature — limit due to file format — limit due to specifications of the product — limit due to capacity of recording medium (value when using a recording medium with the maximum capacity) — limit due to battery life — It is recommended to report factors that limit continuous shooting. — Values should be presented in units of minute rounded by truncating seconds, but this does not apply to cases in which the time is accurately defined due to the limit of the product specifications or file format. 	The limit value due to battery life is the same as indicated in the feature 61, “battery life”.

Table 4 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<ul style="list-style-type: none"> — In cases of limits due to the file format or capacity of the recording medium, it is recommended to report setting conditions such as motion picture recording mode. Presentation examples: <ul style="list-style-type: none"> — 10 min (heat rise limit, at room temperature of 23 °C) — 10 min and 10 s (in Full HD shooting: limited by file size of 2 GB) — 29 min and 30 s (limited by product specifications) — 2 h and 10 min (in Full HD shooting: limited by capacity of 32 GB SDHC memory card) 	
27	{[image recording storage]} file format	Image file format and directory structure recorded in the digital recording medium Presentation method: (Add to the presentation method provided in B.2.1.5.7) <ul style="list-style-type: none"> — Additional comments shall be given to RAW and other unique formats such as “original”. Presentation examples: <ul style="list-style-type: none"> — Exif 2.3, DCF — RAW (xxx unique) — RAW (needs dedicated software) 	These items are an outline of the material in B.2.1.5.7 .
28	number of effective pixels	Number of photoelements included the image area, where the image area is the 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	These Items are an outline of the material in B.2.1.5.2 . (See 3.2.6 and B.2.1.5.2)
29	number of recorded pixels	Number of luminance pixels comprising one picture frame stored by the DSC Presentation method: (Add to the presentation method provided in B.2.1.5.4) <ul style="list-style-type: none"> — Regardless of the factory shipping values, the number of recorded pixels available may be reported as a list. 	These items are an outline of the materials in B.2.1.5.4 (See 3.2.8 and B.2.1.5.4).
30	[sound audio] codec	Sound codec system available for still picture recording with audio, for example Presentation method: <ul style="list-style-type: none"> — Common expressions may be used. Presentation examples: <ul style="list-style-type: none"> — WAVE (monaural) — G.726 — MP3 (stereo) — AC-3 (monaural) 	
31	[movie video] {[clip capture]}	Guidelines for Specifications (Definitions) and Presentation: Video related items, which do not appear in Tables 1 to 7 shall refer to the B.2.2 .	The relevant items are: response time of movie clip, start time of recording and time to automatic termination of record pause.

Table 4 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
32	compressed recording for motion picture and sound	See B.2.3.	The relevant items are: system and file format for motion picture recording, pixel number for motion picture recording and aspect ratio, frame rate for motion picture, recording rate for motion picture, system and number of channel for sound recording, sound sampling rate or bit length, sound recording rate, sound accompanied with motion picture, recording time for motion picture, environment for enabling play-back.

4.2.6 Image quality

[Table 5](#) specifies the definition, the measurement, and the presentation of a set of features for image quality of DSCs.

Table 5 — Definitions of specifications and presentation method for image quality

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
33	sensitivity	<p>Sensitivity for shooting</p> <p>Presentation methods:</p> <p>— Characteristics to be specified as ‘Sensitivity’ are the assigned values of ISO speed, Standard Output Sensitivity (symbol: SOS), and/or Recommended Exposure Index (symbol: REI). The use of one of them, two of them or all of them shall be acceptable. It is also acceptable to use the terms ‘ISO speed’, ‘Standard Output Sensitivity’ and/or ‘Recommended Exposure Index’ as notational terms of each value instead of using the word ‘Sensitivity’.</p> <p>— When assigned values are specified as ‘Sensitivity’ in catalogues or instruction booklets, one of ISO speed, Standard Output Sensitivity and Recommended Exposure Index shall be listed.</p> <p>Presentation examples:</p> <p>— Standard Output Sensitivity: ISO 125</p> <p>Recommended Exposure Index: ISO 100</p> <p>— ISO 100 (Standard Output Sensitivity)</p> <p>— ISO 100 (REI)</p> <p>(REI: Recommended Exposure Index)</p> <p>— ISO 100 (ISO speed)</p>	<p>These items are an outline of ISO 12232.</p> <p>The reporting of sensitivity shall comply with ISO 12232 as outlined to the left and the items listed under “Presentation methods”.</p> <p>This reference International Standard also requires below for example;</p> <p>1) The calculated value shall be rounded off using Table 1 of the International Standard.</p> <p>2) A “D” or descriptive term such as “Daylight” may be used to designate daylight illumination, but is not required. A “T” or descriptive term such as “Tungsten” shall be used to designate tungsten illumination.</p> <p>3) It is possible that the SOS value changes as a function of the f-number of the lens, for example due to the structure of a micro-lens overlay on the image sensor. In such cases, the f-number used for the measurement shall be reported along with the SOS value.</p>
34	[defect defective pixels]	<p>Pixels that are not supplied in the output signals from a DSC as they should normally be, or more specifically, those pixels that significantly differ in output from the other pixels so that the user can clearly perceive the defect</p>	<p>— This document does not specify any measurement method.</p> <p>— This word reports a defect of the DSC unit, instead of a defect of individual parts.</p>
35	resolution	<p>Limit of resolution with which fine patterns can be resolved excluding aliasing portions, and is expressed as the number of lines per unit height of the picture frame (LW/PH)</p> <p>It shall comply with ISO 12233 and use the “visual resolution” method defined in this reference and some mandatory requests and conveniences are added as follows. The resolution value derived from the SFR as the spatial frequency value for a given modulation level (See ISO 12233:2014, 8.3.1) may also be used as the summary resolution metric as long as it is consistent with the visual resolution.</p>	<p>— This rule is to be equivalent to CIPA DC-003 complying with and referring to ISO 12233.</p> <p>— The unit LW/PH is “Line Width per Picture Height”</p>

Table 5 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>Measurement method:</p> <p>— Basic method with visual evaluation: The measurement comply with the “visual resolution” measurement method using the resolution test chart in ISO 12233.</p> <p>And visual evaluations shall be made as follows to ensure consistency.</p> <p>a) The measured resolution shall be the spatial frequency at which individual black and white wedge lines on a visual resolution test pattern can no longer be distinguished (e.g. the number of visible lines changes from 5 to 4).</p> <p>b) Observations shall always be made from lower to higher spatial frequencies.</p> <p>c) When assigned values are specified as ‘Sensitivity’ in catalogues or instruction booklets, either Standard Output Sensitivity or Recommended Exposure Index shall be listed.</p> <p>d) Any desired image magnification may be used for viewing.</p> <p>— Alternative method with evaluation software: Evaluation using software that performs the equivalent processing as visual evaluation is also possible.</p> <p>Presentation methods:</p> <p>1) Numerical values of resolution:</p> <p>— Notation of resolution shall include only the resolution measured in the conditions specified by the method in accordance with the visual resolution measurement defined in ISO 12233, and the values shall be reported in unit LW/PH.</p> <p>— Any resolution exceeding 600 lines (LW/PH) is preferably noted in units of 50 lines (LW/PH).</p> <p>— Notation of resolution shall always include the smallest value among the measurements obtained in the four directions: horizontal, vertical, 45-degree diagonal to the upper right, and 45-degree diagonal to the lower right.</p> <p>— When reporting any value(s) other than the smallest one, it shall be always accompanied by the smallest value.</p> <p>2) Resolution measuring direction:</p> <p>— When reporting the resolution values obtained in two or more measuring directions, the relevant resolution measuring directions shall be noted.</p> <p>— For simplicity, “45-degree diagonal to the upper right” may be expressed as “diagonal to the upper right” and “45-degree diagonal to the lower right” as “diagonal to the lower right.”</p> <p>— When reporting the value in either direction of “45-degree diagonal to the upper right” or “45-degree diagonal to the lower right”, the direction may be expressed simply as “diagonal”.</p>	

Table 5 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>Presentation examples:</p> <ul style="list-style-type: none"> — the smallest single value 1 100 LW/PH — the largest and smallest values Horizontal: 1 250 LW/PH, Diagonal 1 100 LW/PH — Each four directions Horizontal: 1 250, Vertical: 1 200, 45-degree diagonal to the upper right: 1 150, 45-degree diagonal to the lower right: 1 100 	
36	low contrast luminance amplitude/frequency response	<p>Luminance amplitude/frequency response characteristics of a low contrast subject</p> <p>Measurement method:</p> <ul style="list-style-type: none"> — Shall comply with ISO 19567-1 <p>Presentation methods:</p> <ul style="list-style-type: none"> — The results shall be reported in a table or a graph with the x-axis representing the frequencies, the y-axis representing the amplitude values. — It is recommended to state shooting conditions that significantly affect the characteristics (such as f-number and focal length of lens, subject distance, and ISO sensitivity, etc.). — When reporting this characteristic, state at least any one of “individual characteristics”, “average characteristics and those in the direction with the minimum value”, and “characteristics in the direction with the minimum value” in four directions, or horizontal, vertical, +45° diagonal, and –45° diagonal directions. — “Characteristics in the centre” and “characteristics at a position with the minimum value out of four corner parts” should be stated. 	— These items are an outline of ISO 19567-1.
37	signal to noise ratio	Signal to noise ratio of the output image	Shall comply with ISO 15739.
38	[opto-electronic conversion function tone characteristics]	Characteristics of the output signal level of the output image signals versus the input level of light	Shall comply with ISO 14524.
39	dynamic range	Ratio of the maximum level of luminance signals without saturation to the minimum level of luminance signals (the level of luminance signals where the S/N ratio to random noise is one)	Shall comply with ISO 15739.
40	image geometric distortion	<p>Displacement from the ideal shape of a subject (lying on a plane parallel to the image plane) in the recorded image</p> <p>Presentation method:</p> <ul style="list-style-type: none"> — In case of reporting the line geometric distortion, the number of significant digits to be reported shall be two or more (round the value to the nearest decimal). <p>Presentation examples:</p> <ul style="list-style-type: none"> — ISO line geometric distortion +2,5 % — Geometric distortion -2,0 % (ISO line geometric distortion) 	<ul style="list-style-type: none"> — These items are an outline of ISO 17850. — The reporting shall comply with ISO 17850 and the items listed under “Presentation method”.

Table 5 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
41	lightness non-uniformity	Variation of the lightness signal components within the image field Presentation method: — The number of significant digits to be reported shall be one or more places below the decimal point (round the value to the nearest decimal). Presentation example: — 12,2 or less	— These items are an outline of ISO 17957. — The reporting shall comply with ISO 17957 and the items listed under “Presentation method”.
42	luminance non-uniformity	Variation of the luminance signal components within the image field Presentation method: — The number of significant digits to be reported shall be one or more for less than 10 %, and two or more for 10 % or more (round the value to the nearest decimal). Presentation example: — 53 % or less	— These items are an outline of ISO 17957. — The reporting shall comply with ISO 17957 and the items listed under “Presentation method”.
43	colour non-uniformity	Variation of the chrominance signal components within the image field Presentation method: — The number of significant digits to be reported shall be one or more places below the decimal point (round the value to the nearest decimal). Presentation example: — 5,8 or less	— These items are an outline of ISO 17957. — The reporting shall comply with ISO 17957 and the items listed under “Presentation method”.
44	total colour non-uniformity	Variation of the total colour within the image field Presentation method: — The number of significant digits to be reported shall be one or more places below the decimal point (round the value to the nearest decimal). Presentation example: — 18,5 or less	— These items are an outline of ISO 17957. — The reporting shall comply with ISO 17957 and the items listed under “Presentation method”.
45	white balance	Deviation from white of the output image, when a gray chart illuminated by light sources with various colour temperatures is shot This document does not cover this item. ^a	
46	colour reproduction	Difference of colour between the actual colour of a subject and the output colour obtained by shooting This document does not cover this item. ^b	

Table 5 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
47	chromatic displacement	<p>Displacement of R or B signals to G signal in output signals.</p> <p>Measurement method:</p> <ul style="list-style-type: none"> — Shall comply with ISO 19084 <p>Presentation methods:</p> <ul style="list-style-type: none"> — State the value with the largest displacement out of the lateral chromatic displacement at each position. It is also recommended to indicate the measurement position. — F-number, focal length of lens, chart distance, lighting illuminance, and the horizontal and vertical number of recording pixels shall be reported. — The relative value shall be given in units of 0,01 % (round the value up to a unit). — The relative value should be reported <p>Presentation example:</p> <ul style="list-style-type: none"> — 0,10 % in upper-right part (0.9H, 0.9V) (focal length: 4,6 mm(W-end), F2.8, chart distance: 1,5 m, 1 500 lx, recording pixels: 5 472 × 3 648) 	<p>These items are an outline of ISO 19084.</p> <p>Partially adopted the ISO 19084 provisions: this provision adopted “chromatic displacement” in ISO 19084 that provides both “chromatic displacement” and “radial chromatic displacement”, after concluding that chromatic displacement, that shows two dimensional chromatic displacement: horizontal and vertical directions, is more appropriate than radial chromatic displacement, that shows one dimensional chromatic displacement: radial direction to indicate lateral chromatic displacement. The reason is this: recently the cause of the lateral chromatic displacement is not only lens performance but also other factors, such as digital signal processing.</p> <ul style="list-style-type: none"> — In the case of reporting the value of the radial chromatic displacement, the result shall be added to the result of lateral chromatic displacement provided in this item. And furthermore the note shall contain the statement that “the value shows the only radial displacement of two dimensional displacements in the polar coordinate system” and “ISO {radial chromatic displacement} compliant”.
48	image flare	<p>Unwanted increase in signal resulting from light incident on an image sensor that does not emanate from a corresponding subject point</p> <p>Presentation methods:</p> <p>In addition to the provisions of ISO 18844, the number of digits to be indicated below shall be complied with.</p> <p>In the case of catalogs for general users, etc., the addition of all or part of the shooting conditions (f-number of lens, focal length, subject distance, ISO sensitivity, output brightness value, measurement format, etc.) that do not significantly affect the characteristics may be omitted, regardless of the ISO 18844 specification.</p> <ul style="list-style-type: none"> — The number of significant digits to be indicated shall be one or more for less than 1 %, and two or more for 1 % or more (round the value to the nearest decimal). <p>Presentation example:</p> <ul style="list-style-type: none"> — Flare 0,6 % (W-end(focal length 28 mm, F2.8)) 	<ul style="list-style-type: none"> — These items are an outline of ISO 18844.
49	proper exposure	<p>Exposure value that produces the optimum picture quality</p> <p>This document does not cover this item.^c</p>	

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Table 5 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
50	minimum acceptable luminance for scene or subject	Minimum luminance of a scene or subject that is needed to produce an acceptable picture quality This document does not cover this item. ^d	
51	depth of field	Range of distances in the subject space within which the surfaces of the subjects are assumed to be in focus on the image plane This document does not cover this item. ^e	
52	image stabilization performance	<p>Extent of the correction of camera shake observed as a change in the shutter speed</p> <p>Measurement method</p> <p>1) optical system</p> <p>Shall comply with ISO 20954-1.</p> <p>2) electronic system and hybrid system</p> <p>Left to the proprietary method of the relevant company</p> <p>Presentation methods:</p> <p>1) common</p> <p>— A value for the image stabilization performance other than under the factory shipping conditions may be indicated with an additional statement on the settings under which such value is valid.</p> <p>2) optical system</p> <p>— For yaw and pitch axes</p> <p>The characteristic shall be expressed as the difference of shutter speed (difference of TV value in APEX expression).</p> <p>— For axes other than yaw and pitch axes</p> <p>i) Entrust to the relevant company.</p> <p>ii) A statement shall be added to the text on performance that states the results are measured using proprietary measurement methods not conforming to ISO standards.</p> <p>3) electronic system and hybrid system</p> <p>i) Entrust to the relevant company.</p> <p>ii) A statement shall be added to the text on performance stating that the results are measured using proprietary measurement methods not conforming to ISO standards.</p> <p>Presentation examples:</p> <p>1) optical system</p> <p>— Image stabilization performance: 2.0 stops (W-end), 2.5 stops (T-end) (ISO)</p> <p>— Image stabilization performance: 2.0 stops or more (in the whole range of focal distance) (Conforms with ISO standard)</p> <p>— Image stabilization performance: 2.0 stops* (Yaw/pitch axes, ISO compliant)</p> <p>Reduced to 33 % (Roll direction; based on in-house measurement methods)</p> <p>*: At focal length of 50 mm (35 mm film equivalent: 100 mm).</p>	<p>— These items are an outline of ISO 20954-1.</p> <p>— The reporting shall comply with ISO 20954-1 and the items listed under “Presentation method”.</p> <p>Note that: ISO 20954-1 is a standard for optical systems, but regarding the presentation method and presentation examples, it may be applied to other systems until other standards are established for them.</p>

Table 5 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>2) electronic system</p> <p>— Image stabilization performance: 1.5 stops (In EIS2 mode for all focal lengths according to in-house product quality measurements.)</p> <p>— Image stabilization performance: Reduce to 1/3 (For all focal lengths according to in-house measurements.)</p> <p>3) hybrid system</p> <p>— Image stabilization performance: 4.5 stops (Based on in-house measurements. For all interchangeable lenses at all focal lengths.)</p> <p>— Image stabilization performance: Reduce to 1/4 (For all focal lengths according to in-house measurements.)</p>	
<p>^a It is impossible to define the targeted characteristics. Colorimetric white balance is different from the preferable white balance of DSCs, and so a DSC that always reproduces gray as white may not produce a desirable image.</p> <p>^b It is impossible to define the targeted characteristics.</p> <p>— Colorimetric colour reproduction is different from colour reproduction required for DSCs, and so a DSC with little error in colour reproduction may not produce a desirable image.</p> <p>(Example: It is impossible to evaluate memorized colours by means of colorimetric performance.)</p> <p>— Colour reproduction characteristics might be a function of other settings such as white balance setting, shooting mode, etc.</p> <p>— If a camera has a mode that produces a scene-referred image, the colour reproduction can be objectively evaluated in this mode.</p> <p>^c It is impossible to determine uniformly what the optimum exposure is, as it varies greatly depending on the shooting scene (subject), viewer's personal taste and feeling, type of DSC, etc.</p> <p>Accordingly, it is inappropriate to specify a proper exposure value uniformly in a public standard; it should be left to the discretion of each supplier and the market.</p> <p>^d Picture quality depends on a close relationship or balance of many individual features that affect picture quality. 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.</p> <p>Accordingly, it is inappropriate to specify an acceptable picture quality or minimum subject illumination uniformly in a public standard; it should be left to the discretion of each supplier and the market.</p> <p>^e Defining the depth of field is equivalent to specify an acceptable value of resolution or sharpness, that is, acceptable picture quality. An acceptable or optimum picture quality varies greatly depending on the shooting scene (subject), viewer's personal taste and feeling, type of DSC, etc.</p> <p>Accordingly, it is inappropriate to specify the depth of field uniformly in a public standard; it should be left to the discretion of each supplier and the market.</p>			

4.2.7 Response time

Table 6 specifies the definition, the measurement, and the presentation of a set of features for response time of DSCs.

Table 6 — Definitions of specifications and presentation method for response time

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
53	start-up time	Time between switching a DSC on and the moment the camera has reached a standby state ready to shoot Presentation methods: — Shall comply with ISO 15781 on the number of significant digits in spite of the basic requirement f) in 4.1. — The time under settings other than the factory shipping conditions may be reported with an additional statement on the conditions under which such time is valid. Presentation examples: — 1,0 s — 1,5 s; 0,9 s (when flash is turned OFF)	— These items are an outline of ISO 15781. — The reporting of image start-up time shall comply with ISO 15781 as outlined to the left and the items listed under “Presentation methods”. — “Pre-Exposure” stated in ISO 15781 has the same meaning as “1st release”.
54	shutter release time lag	Time duration to the time of starting the exposure from the time of fully pressing down the shutter button after having stabilized the focus operation due to half pressing of the shutter Presentation methods: — Shall comply with ISO 15781 on the number of significant digits in spite of the basic requirement f) in 4.1. — The time under settings other than the factory shipping conditions may be reported with an additional statement on the conditions under which such time is valid. Presentation examples: — Shutter time lag: 0,015 s — Release time lag: 0,02 s — Release lag: 20 ms (35 mm film equivalent focal length: 60 mm)	— These items are an outline of ISO 15781. — The reporting of shutter release time lag shall comply with ISO 15781 as outlined to the left and the items listed under “Presentation methods”. — Examples of more concise expressions are “shutter {time} lag” or “release {time} lag”.
55	shooting time lag	Time between pressing the exposure button (firmly depress the shutter button to the maximum extent without introducing a discontinuity) and the beginning of the exposure. This period of time includes all measurements and adjustments – like auto focus and exposure control – a DSC needs to make prior to the beginning of the exposure Presentation methods: — Shall comply with ISO 15781 on the number of significant digits in spite of the basic requirement f) in 4.1. — The time under settings other than the factory shipping conditions may be reported with an additional statement on the conditions under which such time is valid. Presentation examples: — Shooting time lag: 0,6 s (subject distance 3 m, F2.8) — Shooting time lag: 1,0 s (liquid crystal touch shutter)	— These items are an outline of ISO 15781. — The reporting of shooting time lag shall comply with ISO 15781 as outlined to the left and the items listed under “Presentation methods”. — In case of a camera with a shutter button having two positions for pre-exposure (1st release) and start of capture (2nd release), press the button in one motion down to the start of capture (2nd release) position.

Table 6 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
56	[burst] shooting rate	<p>Reciprocal of the time duration from the start of exposure of an image to the start of exposure of the next image in continuous shooting (mode)</p> <p>It is equal to the number of shots (performance) per second a camera can take successively.</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — Shall comply with ISO 15781 on the number of significant digits in spite of the basic requirement f) in 4.1. — State the rate by linking to the number of shots recordable in continuous shooting. <p>Presentation examples:</p> <ul style="list-style-type: none"> — 3.0 shots/second (up to 7 continuous shots) — 3.0 frames/second (up to 7 continuous frames) — 3.5 shots/second (for up to 7 shots); 1.5 shots/second (after the 8th shot) (when xxx medium is used) 	<ul style="list-style-type: none"> — These items are an outline of ISO 15781. — The reporting of shooting rate shall comply with ISO 15781 as outlined to the left and the items listed under “Presentation methods”. — In the case of indicating the same contents by the shooting interval (time) in continuous shooting (mode), use an item name different from the shooting rate (for example, continuous shooting interval). <p>If the shooting rate becomes remarkably slow, report the time duration before it becomes remarkably slow.</p>
57	number of [recordable pictures shots] in [burst {shooting} continuous shooting] mode	<p>The number of shots that a camera can continuously take at an approximately constant speed in continuous shooting (mode)</p> <p>Presentation method:</p> <p>It is recommended that the value be reported linked to the continuous shooting speed.</p> <p>Presentation examples:</p> <ul style="list-style-type: none"> — 7 shots (3.5 shots/second) — 100 shots — Up to the capacity of the recording medium 	<ul style="list-style-type: none"> — These items are an outline of ISO 15781. — The reporting of number of shots in burst shooting mode shall comply with ISO 15781 as outlined to the left and the items listed under “Presentation method”.
58	shooting interval	<p>Time interval from the time of one release to the time of the next available release in single shooting mode that takes pictures one by one, where the time interval is defined as the time duration from the end of an exposure to the start of the next exposure</p> <p>Measurement method:</p> <p>Between one shot and the next, there must be a moment when the finger completely leaves the shutter release button. Other conditions of measurement should conform with ISO 15781.</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — The number of significant digits should be two or more by rounding the value to the nearest decimal; however, one digit will suffice for times of less than 1 s. — In spite of the basic requirement f) in 4.1, shall comply with the above requirement on the number of significant digits even when the reported value is a whole number. — The time under settings other than the factory shipping conditions may be reported with an additional statement on the conditions under which such time is valid. <p>Presentation examples:</p> <ul style="list-style-type: none"> — 0,5 s (image size VGA) — 1,2 s — 2,0 s 	<p>If the shutter speed is short enough, the interval from the time of starting an exposure to the time of starting the next exposure will be roughly the same value.</p>

Table 6 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
59	Auto Focus {AF} speed	<p>Time duration from the start of AF operation to the end of focusing action (including the time required for processing or actions other than the AF action conducted during the period)</p> <p>Measurement methods:</p> <ul style="list-style-type: none"> — Internal measurement method: <p>See A.4.2.</p> <ul style="list-style-type: none"> — External measurement method: <p>See A.4.2 and shall comply with ISO 15781 for the specific measurement method.</p> <p>External measurement method is to be treated as an alternative when measurement by Internal measurement method is technically not practical.</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — Report which method Internal measurement method or External measurement method is used. — The time under settings other than the factory shipping conditions may be reported with an additional statement on the conditions under which such time is valid. Especially, “conditions affecting the AF speed” should be expressly stated, when the fastest value is stated. — Additional conditions significantly affecting AF speed should be stated for other cases; however, this additional statement of shooting conditions may be omitted, if the maximum value under shooting conditions is reported. — The measurement value should be reported as the average value obtained from 8 of 10 measurement values by eliminating the maximum and minimum values. — Results should be presented in units of 0,01 s for Internal measurement method (round the value up to a unit) and in units of 0,1 s for External measurement method (round the value up to a unit). <p>Presentation examples:</p> <ul style="list-style-type: none"> — Fastest: 0,15 s (Internal measurement method; f = 14 mm; F3.5; LV7 – 14; face recognition OFF; manual exposure; focus priority mode; centre area fixed; and AF-S mode) — Maximum: 0,2 s (External measurement method) 	<p>Examples of “ conditions affecting the AF speed”:</p> <ul style="list-style-type: none"> — (in the case of an interchangeable lens camera) such conditions as the lens — focal length of the lens — f-number of the lens — lighting conditions — multiple or spot measurement of distance <ul style="list-style-type: none"> — AF mode — release mode — exposure mode — face recognition

4.2.8 Miscellaneous features

[Table 7](#) specifies the definition, the measurement, and the presentation of a set of features for miscellaneousness of DSCs.

Table 7 — Definitions of specifications and presentation method for miscellaneousness

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
60	[zoom ratio magnification] of playback mode	Ratio of similitude between the enlarged image and the original sized image on the picture display in playback mode Presentation method: If the enlarged magnification is different between the horizontal and vertical directions, report the ratio of length in the diagonal direction. Presentation example: — 4x	
61	battery [consumption life]	Total number of images that can be taken without changing or recharging the battery (starting with a new primary battery or fully charged rechargeable battery) Note that: Different methods shall be used for still shooting and capture of movie clips. Presentation method: It is acceptable to report only one of the two.	— The reporting shall comply with ISO 20087 and the items listed under “Presentation method”.
	a) battery [consumption life] of still [shooting capture]	Total number of images that can be taken without changing or recharging the battery during still shooting	— The measurement method of ISO 20087 is intended to keep consistency with CIPA DC002.
	b) battery [consumption life] of [movie video] [clip capture]	Time duration that can be shot without changing or recharging the battery during movie recording Nevertheless, — If recording is stopped due to the limit of continuous recording time of the DSC, resume recording as soon as possible, and battery life is defined as the total duration of movie recording. — If recording is stopped due to the limit of temperature rise, repeat the operation to resume recording after allowing the camera to cool, and battery life is defined as the total duration of movie recording. Measurement method: See A.4.2 . Presentation methods: — In principle, report the actual shooting battery life. — When this item is reported in a catalogue, report also “recording time for continuous movie capture” mentioned in the feature 26.	— The measurement method is intended to keep consistency with JEITA CP-3202B. — The measurement methods shown in A.4.1 is adding some modifications, such as defining detailed conditions suitable for DSCs, to the above JEITA standard.
	(b-1) battery [consumption life] of [movie video] [clip capture] in actual use case	Time duration that can be shot and recorded without changing or recharging the battery in a test conducted by a shooting method simulating actual usage conditions of movie recording (activating actions such as zooming the lens position, REC and STBY of shooting, ON-OFF of power in a specified sequence) Measurement method: See A.4.1.1 .	— The measurement method is intended to keep consistency with JEITA CP-3202B. — The measurement methods shown in A.4.1.1 is adding some modifications, such as defining detailed conditions suitable for DSC, to the above JEITA standard.

Table 7 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
	(b-2) battery [consumption life] of continuous [movie video] [clip capture]	Time duration that can be shot and recorded continuously without changing or recharging the battery under specified fixed conditions (such as fixing the lens at the wide angle end, fixing the shooting in REC action, fixing the power at ON, and fixing the subject) Measurement method: As shown in A.4.1.2 .	— The measurement method is intended to keep consistency with JEITA CP-3202B. — The measurement methods shown in A.4.1.2 is adding some modifications such as defining detailed conditions suitable for DSC, to the above JEITA standards.
62	mass	See B.3.2 (an outline is shown below). Total mass of the DSC and interchangeable lens at the time of shooting Measurement method: 1) Digital still camera: Measure the mass, using a weighing instrument, of the DSC equipped with the battery used for measuring CIPA battery life and the recording medium recommended as most suitable by the supplier. 2) Interchangeable lens: Measure the mass, using a weighing instrument, of the lens with accessories attached that is not removable without using a tool: substitute tool such as a coin may be deemed to be a tool. Presentation method: The figures obtained by “2. Measurement method” should be reported. If an interchangeable lens does not include any part for attaching a tripod, state that fact. Presentation examples: 1) Digital still camera: — Mass: 125 g — Mass: 185 g (including supplied battery and recording medium) 2) Interchangeable lens: — Mass: 695 g — Mass: 2 900 g (including attached part for fitting a tripod) The term “weight” may be used instead of “mass” because the “weight” of an object is simply proportional to the “mass” of that object and the term “weight” is commonly used in a relative (comparative) sense and is commonly used as a synonym of “mass”.	
63	dimensions	See B.3.2 (an outline is shown below). External dimensions of the DSC or interchangeable lens. Measurement method: 1) Digital still camera Define a rectangular cuboid with the smallest dimensions that contains the DSC and measure its three dimensions with a dimension-measuring instrument. In this instance, any part may be deemed to be a protrusion that may be eliminated from the external dimensions (except a lens that cannot be detached), if it has a total area of 20 % or less of the projected area viewed from the direction perpendicular to one surface and the area of the protrusion is 10 % or less of the dimensions of a surface perpendicular to said surface.	

Table 7 (continued)

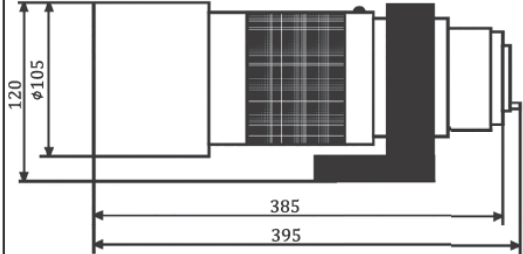
No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
		<p>2) Interchangeable lens</p> <p>Measure the maximum diameter of the circular portion and the length from the mounting surface to the end of the lens. In this instance, any protrusions on the circular portion or any part for attaching a tripod may be eliminated from the external dimensions.</p> <p>Presentation method:</p> <p>The figures obtained by "Measurement method" should be reported. Drawings may be used to avoid ambiguity.</p> <p>Presentation examples:</p> <p>1) Digital still camera:</p> <ul style="list-style-type: none"> — Dimensions: 111,2 (width) {mm} × 56,5 (height) {mm} × 19,9 (depth) mm — Dimensions: 125,7 (W) {mm} × 62,3 (H) {mm} × 28,9 (D) mm <p>2) Interchangeable lens:</p> <ul style="list-style-type: none"> — Dimensions: ø85 {mm} × 245 mm — Dimensions: ø105 {mm} × 285 mm (295 mm: entire length) — Dimensions: See the drawings below. 	
64	volume	<p>Actual volume of the DSC, interchangeable lens, and waterproof case, when placed in containment or in the state of usage, where the state of being placed in containment means the state in which the power is off</p> <p>Measurement method:</p> <p>Measure by using a volume-measuring instrument. A technique such as submerging it in water may be used provided the measurement result is not ambiguous.</p> <p>Presentation methods:</p> <ul style="list-style-type: none"> — Report in units of cm³. — Whether the camera was placed in containment or in the state of usage shall be expressly described. This provision applies only if the volume changes between the state of being placed in containment and the state of usage. — The number of significant digits to be reported shall be two or more (round the value up to a unit). <p>Presentation examples:</p> <ul style="list-style-type: none"> — Volume: 320 cm³ (in usage) — Volume: 175 cm³ (in containment) 	

Table 7 (continued)

No.	Features	Guidelines and requirements for specifications (definitions) and presentation	Remarks
65	power source	Type of power supply such as applicable batteries and external DC input Presentation methods: — Report the type of battery if used, and the type of external power supply if used. — The battery type may be reported using common expressions. — The external power supply may be reported at the relevant company's discretion. Presentation examples: — Lithium battery (3,7 V, supplied with the camera — Rechargeable lithium-ion battery — Two AA-size, LR6(15A) alkaline (dry) batteries (two cells) — Dedicated AC adaptor (optional)	
66	[electrical electronic] interface	Available external interfaces Presentation method: — Common expressions may be used. Presentation examples: — DC input (special terminal — AV output — Dedicated I/O terminal — USB — Hi-speed USB	
67	operating temperature {range}	Range of temperature at which camera operation is guaranteed Presentation method: — The details of guaranteed operation are left to the discretion of the relevant company. Presentation examples: — 0 °C to 40 °C — -10 °C to +40 °C	
68	operating humidity {range}	Range of humidity at which camera operation is guaranteed Presentation method: — The details of guaranteed operation are left to the discretion of the relevant company. Presentation example: — 10 {%) to 90 %	
69	applicable laws and regulations	Shall comply with various applicable laws and regulations. This document does not cover this item.	This item relates to compliance with laws and regulations.

Annex A (normative)

Measurement methods of features not related to image quality

A.1 Overview

This document covers features of consumer DSCs with no applicable standardized method of measurement. [Tables 1](#) to [7](#) list the characteristic features of consumer DSCs. This Annex describes the measurement conditions and the data analysis procedures for features in this document that are not related to image quality.

A.2 General

This Annex provides the measurement methods for the features other than those that are related to image quality, out of the features for consumer DSCs defined in the [Tables 1](#) to [7](#) of this document.

A.3 Conditions for measurement

A.3.1 General

The measurement of products shall be carried out under the following conditions for measurement.

A.3.2 Environment for measurement

The measurement shall be carried out in the following environment unless otherwise stated:

- Temperature: $23\text{ °C} \pm 3\text{ °C}$;
- Relative humidity: $50\% \pm 20\%$;
- Atmospheric pressure: $101\text{ kPa}^{+5}_{-15}\text{ kPa}$.

A.3.3 Conditions for measurement (setting of digital camera in the measurement)

A.3.3.1 General

The measurement shall be carried out in the following settings and modes unless otherwise stated.

A.3.3.2 All cameras

The measurement shall be carried out under factory shipping settings and modes and the reporting of these settings and modes may be omitted. In the case that measured values under settings other than the factory shipping settings are reported together with the measured values under factory shipping settings, all settings and modes shall be reported.

Remark that:

- a) Functions that are not available in the factory shipping settings shall be measured under settings in which such functions become available.
- b) If there exist any parameters or modes that cannot be determined with the factory shipping settings, measurement shall be carried out under the settings that the manufacturer expects to be most likely

used by users. And, if selection of that setting may affect the specification value, the setting shall be reported.

A.3.3.3 Cameras with interchangeable lenses

In the case of cameras with interchangeable lenses, in principle measurement shall be carried out with the lens placed in position. Selection of the lens is left to the supplier's discretion, but the name or the type of lens that identify the particular lens shall be reported for those features that depend on the lens.

A.3.4 Conditions of shooting

Details of the test chart shall be specified together with the lighting conditions, such as illuminance, luminance and colour temperature of illumination.

A.4 Measurement methods

A.4.1 Battery life when shooting movie clips

A.4.1.1 General

The measurement methods described here are drafted based on those stated in JEITA CP-3202B, Section 13 and Section 14 by adding some modifications for DSCs.

NOTE It is very difficult to measure the battery life. Highly inaccurate measurements are likely unless great care is taken. To avoid this, the measurement should be carried out after thoroughly reading and understanding the commentaries of CIPA DC-002 "Measurement methods of battery life" (especially sections 2 to 5).

A.4.1.2 Battery life of shooting movie clips in actual use case

a) Equipment arrangement

Equipment shall be arranged as described in JEITA CP-3202B, section 13 and as shown in [Figure A.1](#).

b) Subject to be shot

Not specified. It shall be a fixed subject that will not cause hunting in auto-focusing.

c) Conditions of shooting

- The correlation between subject illumination and colour temperature is not specified, but it shall not change during the measurement.
- Illuminance of the subject illumination: 400 lx to 2 000 lx.
- Distance between the subject and the DSC being tested: 1,5 m to 2 m.

d) Shooting sequence (mode)

The shooting sequence (mode) shall be as described in JEITA CP-3202B, section 14, Figure 14.2 in JEITA CP-3202B and shown in [Figure A.2](#).

e) Mode setting of digital camera

- The parameters for setting the features of the digital camera are, in principle, those set by factory shipping settings and modes except those specified in these measurement methods. If the measurement is carried out under settings and modes other than the factory shipping settings and modes, the details of the settings and modes shall be expressly reported.
- Any item for a feature may be omitted if that feature is not available in the camera to be measured, even though the measuring conditions for it are defined in the present measurement methods (For example, a feature for zooming action while shooting movie clips).

- In addition to settings of the parameters for setting features, if some of the settings and modes for larger or smaller magnitude of power are available, measurement shall be carried out under the factory shipping settings and modes. If it is not specified under the factory shipping settings and modes, the measurement shall be carried out at full power as far as possible. For example, the measurement shall be carried out in the mode that consumes most electricity if it is possible to select multiple operations (such as electric zooming and manual zooming) or multiple modes.
 - The measurement of products that have limitations of features during shooting movie clips shall be carried out under the factory shipping settings and modes under such limitations.
- f) The order of priority for the above-mentioned camera settings and modes is as follows:
- 1st priority: Conditions such as the measurement methods mentioned in this subparagraph (A.4.1.2 e).
- 2nd priority: Any parameter for setting a feature not mentioned in A.4.1.2 e) shall be measured in the factory shipping settings and modes.
- 3rd Priority: Any parameter that cannot be determined with the factory shipping settings and modes shall be measured under the setting that the manufacturer expects to be most likely used by the user.
- g) Battery used
- Information (such as model number) of the used battery shall be reported.
 - As for the non-rechargeable battery, a new one shall be used.
 - As for the rechargeable battery, fully charged battery shall be used.
- h) Conditions that determine the end of battery life
- The first automatic low-battery shutdown by the DSC or the first automatic change of a setting or mode that prevents shooting movie clips and that is irreversible in itself signals the end of battery life for this test.
- Remark that:
- If recording is stopped due to the limit of continuous recording time for movie clips of the DSC, the definition in feature 61 b) in Table 7 shall be followed.
 - If a medium becomes full, it shall be erased by means of the camera immediately, or the full medium shall be changed to an empty one as soon as possible. When changing the medium, care should be taken so as not to affect the battery life as far as possible. Also, erasing or changing the medium before it becomes full is not prohibited.
 - In the case that any function relevant to shooting movie clips becomes out of operation, if that function can resume operation by any operation except changing the battery and turning on the power again the function should be resumed at once to continue the measurement.
- i) Measurement procedure
- Load a new battery into the DSC being tested.
 - Secure the DSC into position for testing.
 - Power on the DSC, change to any required settings or modes, and start recording.
 - Allow the battery to discharge while recording until the conditions that determine the end of battery life are satisfied.
 - Do not remove the battery.
 - When the medium used in the DSC becomes unavailable for further recording, replace with identical, unused media. [See Table 7, feature 61 a).]

- Do not power the DSC off and on for media exchange as additional powered functions are executed at these stages.
- Determine the amount of recording (time) on each medium used.
- Sum the recording times across media to determine the total recording time allowed by the battery.

Remark:

The battery for shooting shall not be recharged or changed during an ongoing measurement session even if the recording medium is changed.

A.4.1.3 Battery life of continuous movie clips

a) Equipment arrangement

Same as [A.4.1.2 a\)](#).

b) Subject to be shot

Same as [A.4.1.2 b\)](#).

c) Conditions of shooting

Same as [A.4.1.2 c\)](#).

d) Shooting sequence (mode)

The mode shall be the fixed mode by fixing the lens at the wide angle end, fixing the shooting in REC action, fixing the subject, and fixing the power to ON.

e) Mode setting of digital camera

Same as [A.4.1.2 e\)](#).

f) The order of priority for the above-mentioned camera settings and modes

Same as [A.4.1.2 f\)](#).

g) Battery used

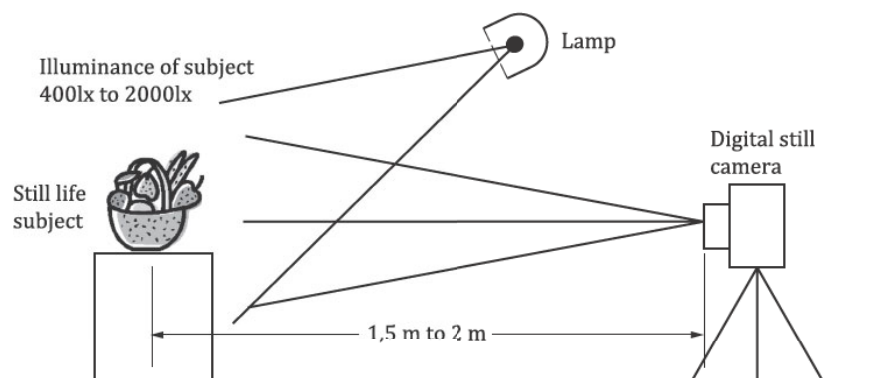
Same as [A.4.1.2 g\)](#).

h) Conditions for determining the end of measurement

Same as [A.4.1.2 h\)](#).

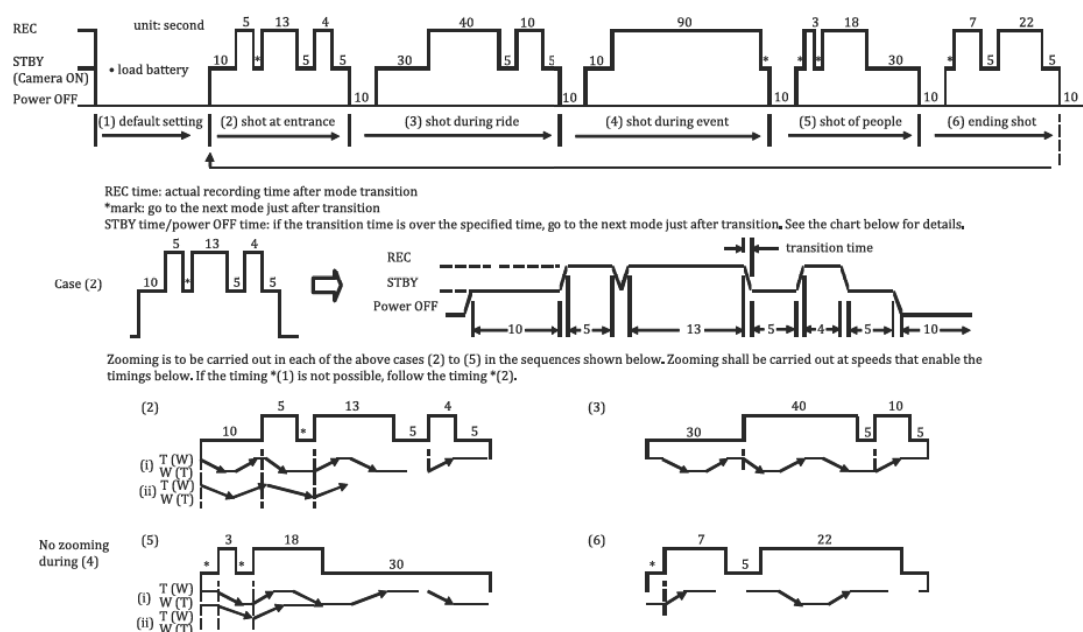
i) Measurement procedure

Same as [A.4.1.2 i\)](#).



NOTE Figure A.1 is a copy of Figure 13.1 "Circuit measurement of continuous shooting time of the battery for shooting" (block diagram) in section 13 "Continuous shooting time of the battery for shooting" of JEITA CP-3202B.

Figure A.1 — Arrangement of equipment for measuring battery life when shooting movie clips



NOTE Figure A.2 is a copy of Figure 14.2 "Shooting mode" in section 14 "Actual shooting time of the battery for shooting" of JEITA CP-3202B.

Figure A.2 — Shooting sequence (mode) for battery life in actual shooting of movie clips

A.4.2 Auto Focus {AF} speed

NOTE 1 A.4.2 refers to ISO 15781. ISO/TS 20490 describes similar contents to the ISO 15781, and although they are both related to AF speed, it is significant for document users to be careful not to confuse them because they have different purposes and evaluation subjects as described below.

ISO 15781 is a standard including the contents available for measuring AF speed, and the result is expressed in time. It includes measurement methods both for single (said "normal" in ISO 15781) AF and for continuous AF, however the primary measurement is single AF.

ISO 18383:2025(en)

ISO/TS 20490 focuses on measuring the AF repeatability of sharpness and latency, as described in its scope, so it does not provide an absolute value for AF latency, resulting in dispersion distribution represented graphically.

Therefore, in this document, in order to state the AF speed as a specification, a method of measuring in single AF of ISO 15781 is adopted.

a) Arrangement of equipment

- The chart that allows the in-focus state to be easily determined, such as the ISO 12233 resolution chart, the ISO 12233 star chart, the ISO 15781 three-line chart, or the ISO 15781 black and white checker chart, shall be placed, respectively, at Pseudo ∞ and X m.

where

Pseudo ∞ is the longer distance of either 100 times the 35 mm film equivalent focal length or 5 m;

X m is the distance of 33 times of the 35 mm film equivalent focal length.

- Correlation of the subject illumination: Not specified, but it shall be the same at Pseudo ∞ and at X m, and it shall not change during the measurement.
- Illuminance of the subject illumination: 400 lx to 2 000 lx (shall be the same at Pseudo ∞ and at X m)

b) The value of exposure is not specified, but the f-number and shutter speed shall remain unchanged during the test. In the case of a digital camera with manual exposure mode it can be achieved by selecting manual exposure mode.

NOTE 2 Reference is made to ISO 15781.

c) The white balance is not specified, but the white balance control shall not be activated. Such condition can be achieved by setting manual white balance mode in the case of a digital camera with manual white balance mode.

NOTE 3 This aims to minimize the effects of any actions other than AF. It is possible to achieve the shooting condition by disabling the controls for exposure and white balance (WB) in the case of a DSC with manual modes for each control by setting to the exposure-fixed and WB-fixed mode, respectively, and in the case of a DSC without any manual mode, by setting the same subject illuminating conditions, for example.

d) The measurement shall be carried out by setting the focusing to focus priority AF mode. The measurement shall not be carried out in AF mode, in which the AF action is activated without the shutter release operation. (AF mode, in which the AF action is activated without the shutter release operation, is not subject to this document.)

e) Measurement procedure:

1) Internal measurement method:

- Focus the DSC on the pseudo ∞ chart.
- The Chart shall be changed to the one at X m.
- Partially press the exposure switch.
- Note the time [at which the exposure switch is pressed]
- Note the time at which the focus lens stops moving its focusing mechanism. The position where the focus lens stops should satisfy the focused condition.

NOTE 4 Determination of the focused condition is left to the discretion of each supplier.

- Subtract the start time from the time at which the lens stopped moving to obtain the AF speed.

In the case that it is not possible to detect when the focus lens stops the AF speed shall be obtained as follows:

- Note the time at which the focus driving motor stops.
- Subtract the start time from the time at which the focus driving motor stops and add the time lag τ of the focus lens movement to obtain the AF speed.

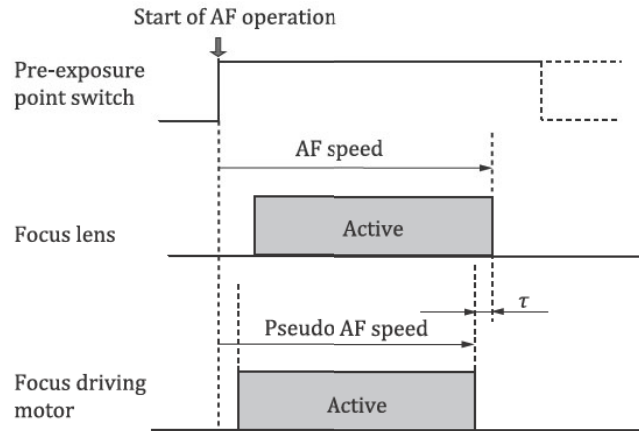


Figure A.3 — Measuring points for AF speed

2) External measurement method:

- Focus the DSC on the pseudo ∞ chart.
- The chart shall be changed to the one at X m.
- Determine the shooting time lag and shutter release time lag as specified in ISO 15781.
- Subtract the shutter release time lag from the shooting time lag to obtain the AF speed.

NOTE 5 In some cases, if the above-mentioned measurement is conducted directly after the states of power-off or sleep, some boot processing time may be required. Thus, it is essential that this operation is conducted during the power-on state.

Annex B (normative)

Related standards

B.1 General

Several features in [Tables 1](#) to [7](#) take substantial material from standard of associations other than ISO and IEC.

For convenience, this Annex shows the copies or translations of applicable parts of related standards or lists the name of related standards.

B.2 Applicable provisions of related standards

B.2.1 Pixel related specifications

B.2.1.1 General information for pixel related specifications

The specifications described in this part [B.2.1](#) are about pixel, image file, and lens-related specifications, which are also generically mentioned Pixel Related Specifications. They are described integrally since they deeply correlate with each other.

B.2.1.2 Related standards of pixel related specifications

The specifications described in this part [B.2.1](#) are based on the two existing national level industrial standards for reporting pixel-related camera specifications listed below, which are almost equivalent. However, the wordings described in the two standards have differences in expression and are not exactly the same. Therefore, this part [B.2.1](#) describes the equivalent provisions that integrate the contents of the two standards.

CIPA DCG-001: 2018, *“Individual Guidelines for noting digital camera specifications on Number of pixels, Image file and Focal length of the lens”*, Camera & Imaging Products Association, January 2018. (Published in Japanese, and the translation is available)

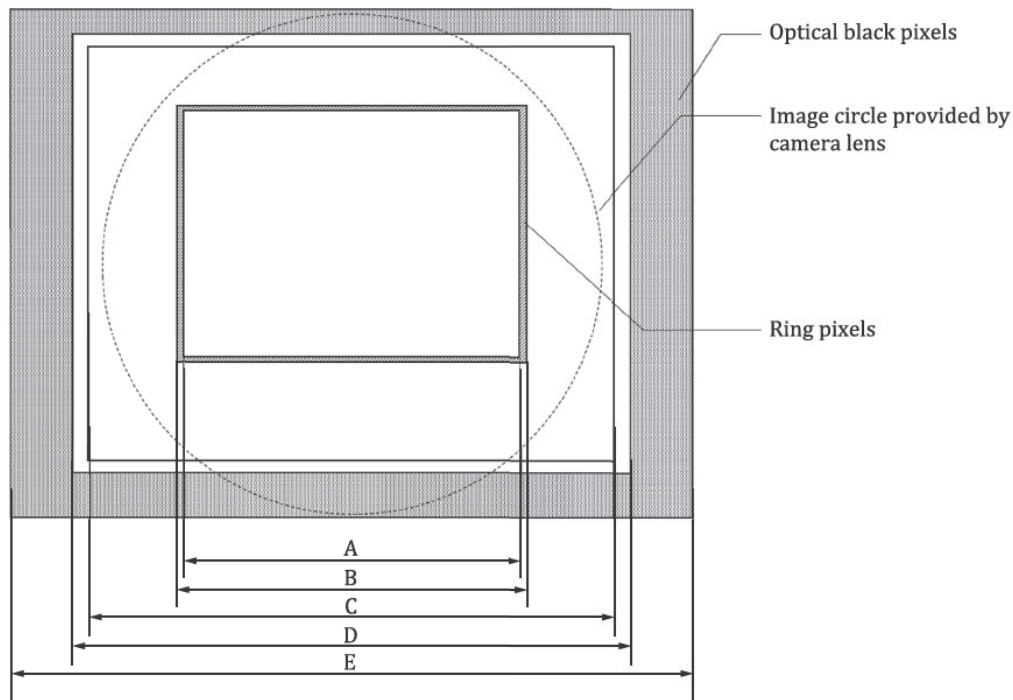
ANSI/IS&T IT10.7000: 2015, *“Digital Still Cameras – Guidelines for Reporting Pixel-Related Specifications”*, American National Standards Institute, 2015.

B.2.1.3 Terms

The terms for Pixel Related Specifications described in this part [B.2.1](#) are specified in [3.2](#) of this document.

B.2.1.4 Relationship between pixel-related terms for image sensors and DSCs

[Figure B.1](#) shows an example of the relationships between pixel-related terms for image sensors. In most DSCs, the image circle provided by the camera lens completely encircles area C and illuminates all the usable pixels on the image sensor. However, in this example the camera lens provides an image circle that does not illuminate all the image sensor pixels in area C. As a result, the number of effective pixels in area B is significantly smaller than the number of pixels in area C.

**Key**

- A Image area – Pixels in the image area capture the portion of image circle included in the image file.
- B Number of effective pixels (including ring pixels) used to produce the image file
- C Maximum usable pixels (Maximum number of pixels guaranteed by image sensor vendor)
- D Total number of image sensor photoelements (Number of light-sensitive pixels on the image sensor)
- E Number of total pixels (Total number of image sensor photoelements plus optical black pixels)

Figure B.1 — Relationships of pixel-related terms for image sensors

[Figure B.2](#) below shows an example of the relationship between pixel-related terms for DSCs. The DSC stores an image file that represents an image corresponding to the image area of the image sensor. The number of effective pixels is equal to the image area plus (optionally) the number of ring pixels. The number of total pixels on the image sensor is larger than the number of effective pixels, since some of the pixels are opaque, or are outside the ring pixel area. The number of recorded pixels may be significantly smaller or larger than the number of effective pixels, if the DSC performs decimation or interpolation prior to recording. The number of output pixels provided by the DSC may likewise be significantly smaller or larger than the number of recorded pixels, if the DSC system performs decimation or interpolation when outputting the stored image file. This output resampling may be provided by the DSC itself or by a separate device, such as a host computer.

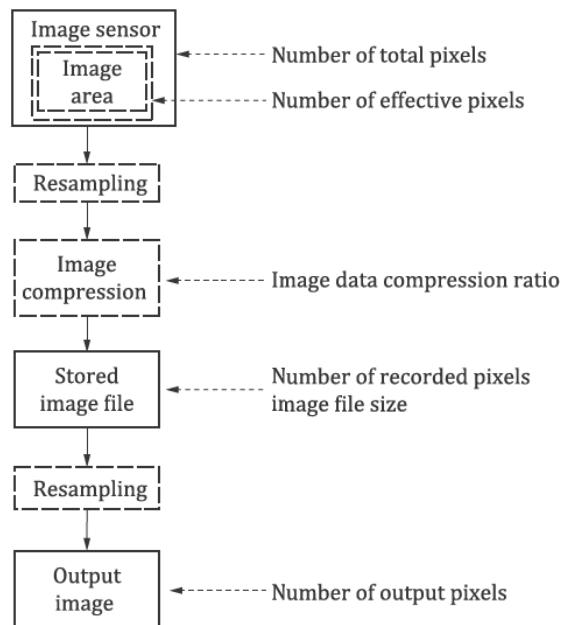


Figure B.2 — Relationship of terms for image sensors and DSCs

B.2.1.5 Features and presentation methods

B.2.1.5.1 General

The Features in this part [B.2.1.5](#) may be selectively reported unless otherwise specified.

When reporting any pixel or image file related specifications for DSCs, the number of effective pixels shall be reported using the primary notation (See [3.1.2](#)). When multiple specifications are reported, careful consideration shall be used to ensure that the other reported values, such as the number of total pixels, or the number of recorded pixels, cannot be confused with the number of effective pixels. When the number of total pixels on the image sensor is reported, it shall be located near the number of effective pixels.

Examples of appropriate reporting statements are provided in [B.2.1.6.1](#).

B.2.1.5.2 Number of effective pixels

The number of effective pixels is the number of photoelements (i.e. light sensitive pixels) in the image area, and may optionally include the number of ring pixels.

The number of ring pixels is the reasonable, minimum number of pixels surrounding the image area which are required for the DSC's image processing operations, such as filtering. The number of effective pixels shall not include optical black pixels, or pixels used for image stabilization.

To avoid confusion, the term “number of effective pixels” shall be used when reporting this value. The term “resolution” shall not be used to describe the number of effective pixels.

The value of the number of effective pixels may be reported in Megapixels (M pixels), where 1 Megapixel equals 1,000,000 pixels. The value may be rounded off to two significant digits.

NOTE 1 The number of effective pixels is not a ranking of the image quality of the DSC. For example, it is possible that a first DSC with a smaller number of effective pixels will provide better image quality than a second DSC having a larger number of effective pixels. The number of effective pixels is a specification of the image sensor in the DSC and does not indicate the camera's performance.

NOTE 2 The number of effective pixels (without rounding) is equal to the number of ring pixels plus the maximum number of recorded pixels, for a DSC having no pixel interpolation.

B.2.1.5.2.1 DSCs with multiple image sensors

For DSCs that use a plurality of image sensors, the number of image sensors and the number of effective pixels corresponding to each image sensor shall be reported. The summation of the number of effective pixels from each image sensor (optionally including ring pixels) may also be reported, but in this case the description shall clearly state that this is the total number of pixels from all of the image sensors combined.

B.2.1.5.2.2 DSCs with multiple position image sensors

For DSCs that move the position of the image sensor (including linear sensors and area sensors) spatially or optically for image capture, the number of effective pixels and the number of sampling positions shall be reported. If the summation of the number of sampled pixels (optionally including ring pixels) is also reported, the description shall clearly state that this is the total number of pixels from all sampling positions, to avoid misunderstanding.

B.2.1.5.2.3 DSCs where the number of effective pixels varies with focal length

If the number of effective pixels varies along with the variation of the focal length of the taking lens, the minimum number of effective pixels shall be reported using the primary notation, except in the case of image processing that compensates for geometric distortion (excluding digital zoom), where the maximum number of effective pixels may be reported using the primary notation. When reporting that the number of effective pixels varies along with the variation of the lens focal length, the description shall be worded so as not to confuse general consumers.

NOTE This annex shows examples of how the image area can change when geometric distortion compensation (excluding digital zoom) is used. These examples also depict variations in the number of effective pixels, since the number of effective pixels changes when the image area changes.

B.2.1.5.2.4 Examples of suitable reporting notations

The typical examples below demonstrate some suitable statements for reporting the number of effective pixels for various types of DSCs. Additional examples, with more details and variations, are shown in [B.2.1.6.1.2](#).

Single sensor DSC:

“16.2 M effective pixels” or “Number of effective pixels = 16,2 M pixels”

Multiple sensor DSC:

“3 × Number of effective pixels 2.1M CCDs”

“Number of effective pixels 6.2M (2.1M x 3)”

DSC with scanning linear sensor:

“Number of effective pixels 8,000 pixels × 12,000 steps”

DSC with moving area sensor:

“Number of effective pixels 8.2M x 4 steps”

DSC where number of effective pixels varies with focal length

“Number of effective pixels 13M (Maximum 15M)”

DSC which includes geometric distortion compensation (excluding digital zoom)

“Number of effective pixels = 12M, note that the number of pixels may decrease due to image processing that corrects image distortion”

B.2.1.5.3 Number of total pixels (on the image sensor)

The number of total pixels is the number of pixels in the image sensor array, including all light-sensitive pixels plus all optical black pixels.

This term shall only be used to describe the image sensor used in a DSC. The number of effective pixels defined in [B.2.1](#) shall be used when specifications of the DSC are reported.

Terms representing the opto-electronic conversion element(s) used in the DSC, such as “image sensor”, “solid-state photo sensor” “CCD”, or “CMOS sensor”, shall be used when the number of total pixels is reported, to avoid confusion. The term “resolution” shall not be used to describe the number of total pixels. The value may be reported in M (1,000,000) pixels and may be rounded off to two significant digits.

For cameras that use multiple image sensors, the number of image sensors shall be reported along with the number of total pixels for each of the image sensors.

Examples of suitable statements:

Single sensor DSC:

“16.2 M effective pixels (using CCD with 16.8 M total pixels)”

Multiple sensor DSC:

“Number of effective pixels = 2.1M x 3 (using 3 CCDs with 2.2M total pixels each)”

B.2.1.5.4 Number of recorded pixels

The number of recorded pixels is the number of luminance pixels comprising one picture frame stored by the DSC.

The values should be reported by listing the number of horizontal luminance pixels followed by the number of vertical luminance pixels, separated by an “x” to indicate multiplication. The values may be rounded off to two significant digits. To avoid confusion, the “number of recorded pixels”, or other wording which has the same meaning, shall be used when reporting these values. The term “resolution” shall not be used to describe the number of recorded pixels.

An additional statement which identifies the format of the colour signals, either using a symbolic description such as RGB or YCbCr, or using words such as “YC System”, “line sequential system”, or “colour difference system”, should be used along with numbers indicating the composition ratio of the colour signals, such as “4:4:4”, “4:2:2”, or “4:1:1”.

NOTE 1 The notation 4:4:4 indicates an equal number of Y, Cb, and Cr samples. The notation 4:2:2 indicates that there are twice as many horizontal Y samples as Cb or Cr samples, and equal numbers of vertical Y, Cb, and Cr samples. The notion 4:1:1 indicates that there are twice as many Y samples as Cb or Cr samples in both the horizontal and vertical directions.

NOTE 2 For DSCs that use resampling (e.g. interpolation or decimation) prior to image recording to increase (or decrease) the image size, the number of recorded pixels will be different than the number of pixels in the image area.

A notation such as “monochrome signal”, to indicate lack of a colour signal, shall be included when no colour signal is recorded by the DSC

Examples of suitable statements:

“Number of recorded pixels: 3,720 x 2 048 (6.3M), Image format: YCbCr 4:2:2”

“Number of recorded pixels: 1 620 x 1 080 (RGB 4:4:4)”

B.2.1.5.5 Number of output pixels

The number of output pixels is the number of luminance pixels comprising one picture frame that is output by the DSC, via a cable or wireless connection.

The values should be reported by listing the number of horizontal luminance pixels followed by the number of vertical luminance pixels, separated by an "x" to indicate multiplication. The values may be rounded off to two significant digits. To avoid confusion, the "number of output pixels", "number of pixels communicated", "number of transmitted pixels", or other wording which has the same meaning, shall be used when reporting these values. The term "resolution" shall not be used to describe the number of output pixels.

An additional statement which identifies the format and composition ratio of the colour signals may be included but is not necessary when this information is provided as part of the "number of recorded pixels".

NOTE For DSCs that use interpolation or decimation after image recording to change the image size, the number of output pixels can be different than the number of recorded pixels.

Examples of suitable statements:

"Number of Output Pixels: 1 620 x 1 080 (RGB 4:4:4)"

"Number of Transmitted Pixels: 3,720 x 2 048 (6.3M)"

B.2.1.5.6 Image file size

The image file size is the amount of data used to store one image frame in the digital storage media, and includes the image header and any other image data and metadata contained in the image file. The image file size value is noted in bytes (B) and should be in kilobytes (kB) or megabytes (MB).

NOTE One kilobyte equals 1 024 bytes and one megabyte equals 1 024 kilobytes.

The numerical value may be rounded off to two significant digits. To avoid confusion, the term "image file size", or similar wording which has the same meaning, should be used.

If the DSC uses scene-dependent (i.e. variable) compression to produce image files that vary in size as a function of the scene content, a statement that the DSC produces variable size files should be included. In such cases, it is recommended that the typical range of file sizes for one frame image be reported.

Examples of suitable statements:

"Image File Size: 2.8MB / frame"

"Image File Size: Approximately 1.5 – 3.0MB (Variable file size)"

B.2.1.5.7 Recorded image file format

The recorded image file format identifies the image file format and directory structure that are used to record images by the DSC. When an industry standard format such as Exif or DCF is used, the name of the format shall be reported, and the version number should be provided along with the name. (In this clause the term industry standard includes de facto standards which have a well-known and commonly used specification.) When an independent or proprietary (i.e. non-standard) format is used, the fact it is an independent file format shall be reported. To avoid confusion, the term "recorded image file format", or similar wording which has the same meaning, should be used.

Examples of suitable statements:

"Recorded Image File Format: Conforms to DCF (Design rule for Camera File System), 2.0"

"Recorded Image File Format (Non-compressed): TIFF"

"Recorded Image File Format: Conforms to JPEG (Exif Ver. 2.32)"

For an image file format output from the camera, such as via a wireless interface, the term “output image file format” may be used. When the format is different, the term shall be used to distinguish it from the recorded file format.

B.2.1.5.8 Image data compression ratio

The image data compression ratio is the ratio of the size of the compressed image data to the size of the image data that was input to the image compression process. The value should be reported using a fraction with a numerator of 1, and the denominator may be rounded off to the nearest whole number. To avoid confusion, the term “image data compression ratio”, or similar wording which has the same meaning, should be used.

If the DSC uses scene-dependent (e.g. variable) compression to provide an image data compression ratio that varies with scene content, a notation that the DSC produces a variable compression ratio should be included along with the average compression ratio.

Examples of suitable statements:

“Image Data Compression Ratio: 1/10”

“Image Data Compression Ratio: 1/15 Average (varies according to the scene)”

When the image data compression ratio is reported, either the colour components of the input image data to be compressed (such as RGB or YC), or the “image file size”, should also be reported.

B.2.1.5.9 Sensor picture size

The sensor picture size is the horizontal and vertical sizes of the image area (area A in [Figure B.1](#)), where it is assumed that no geometric distortion compensation is used.

The values should be reported in millimetres and should be rounded to two decimal places.

Example of a suitable statement:

“Sensor picture size = 6,4 mm x 4,8 mm”

NOTE 1 The sensor picture size and the image area are the same only when no geometric distortion compensation is used. In this case, if the pixels are arranged in a rectangular grid, the sensor picture size is equal to the horizontal pixel pitch times the number of horizontal pixels and the vertical pixel pitch times the number of vertical pixels included in the image area, where the pixel pitch is a distance between the centres of adjacent pixels. For example, if the pixel pitch is 2,0 x 2,0 microns and the image area corresponds to 3,200 x 2,400 pixels, the sensor picture size is 6,4 mm x 4,8 mm.

NOTE 2 This annex provides examples of the image area when geometric distortion compensation (excluding digital zoom) is used. However, since the sensor picture size is calculated with no geometric distortion compensation, the sensor picture size is fixed regardless of the variation of the image area or the number of effective pixels due to geometric distortion compensation (excluding digital zoom). The sensor picture size is the same common outer rectangle, shown using bold lines, in every example depicted in [Figure B.1](#).

B.2.1.5.10 Focal length of the lens

The focal length of the lens is the distance along the optical axis between the secondary (back) principal point and the focal point when the lens is focused at infinity, as defined in ISO 517.

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.

Examples of suitable statements:

“Focal Length of the Lens: 3,5 mm”

“Zoom lens (Focal Length 3,5 to 10,5 mm)”

B.2.1.5.11 35 mm film equivalent focal length

The 35 mm film equivalent focal length of a DSC lens (f_{35}) is the value given by the following [Formula \(B.1\)](#):

$$f_{35} = f_{\text{DSC}} \times \frac{43,27 \text{ mm}}{D_{\text{DSC}}} \quad (\text{B.1})$$

where

f_{35} is the 35 mm film equivalent focal length of the DSC lens,
 f_{DSC} is the focal length of the DSC lens, and
 D_{DSC} is the diagonal length of the sensor picture size of the image sensor, calculated using at least 3 significant digits.

NOTE 1 The diagonal length of the picture size of a 35 mm film camera is 43,27 mm, as defined in ISO 1754, and the image aspect ratio of 35 mm film is 3:2. If the DSC camera has a different image aspect ratio, its field of view cannot match the field of view of a 35 mm film camera.

NOTE 2 When considering 35 mm-equivalent focal lengths, it is important to recognize that the sensor picture size significantly influences the depth of field at a given f-number. This affects the range of f-numbers that provide a particular depth of field for photographing various subjects. For example, a DSC with a 10 mm focal length lens and a sensor with a diagonal focal plane length equal to $\frac{1}{4}$ that of 35 mm film (i.e. a 35 mm film equivalent focal length of 40 mm), will have four times the depth of field at the same f-number as a 40 mm lens on a 35 mm film camera, when each camera is used to produce the same size final image of a subject taken from the same distance.

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.

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.

Examples of suitable statements:

“Lens Focal Length: 7 mm (35 mm film equivalent Focal Length: 50 mm)”

“35 mm film equivalent Focal Length: 24 -100 mm”

B.2.1.5.12 Sensor optical format

The sensor optical format provides a classification of the picture size of an image sensor used in a DSC. The format is the entry from [Table B.1](#) having a nominal diagonal distance closest to the value of the diagonal distance of the sensor picture size specified in [B.2.1.5.9](#). When reporting the sensor optical format, the actual dimensions of the sensor picture size (i.e. either the vertical and horizontal lengths, or the diagonal length and aspect ratio) should also be reported.

Table B.1 — Sensor optical formats

Sensor optical format	Nominal diagonal distance	Nominal sensor picture size for 4:3 image aspect ratio
3" type	48,0 mm	38,4 mm × 28,8 mm
2" type	32,0 mm	25,6 mm × 19,2 mm
4/3" type	22,0 mm	17,6 mm × 13,2 mm
1" type	16,0 mm	12,8 mm × 9,6 mm
2/3" type	11,0 mm	8,8 mm × 6,6 mm
1/1.8" type	8,9 mm	7,1 mm × 5,3 mm
1/2" type	8,0 mm	6,4 mm × 4,8 mm
1/2.7" type	6,7 mm	5,3 mm × 4,0 mm
1/3" type	6,0 mm	4,8 mm × 3,6 mm
1/4" type	4,5 mm	3,6 mm × 2,7 mm
1/6" type	3,0 mm	2,4 mm × 1,8 mm
1/8" type	2,25 mm	1,8 mm × 1,35 mm

NOTE 1 The sensor optical format types (e.g. ½" type) listed in [Table 1](#) are historically based on the outer diameter of the glass envelop of a vidicon tube.

NOTE 2 The Four Thirds System is designed based on the 4/3" type sensor optical format. However, the nominal values (Diagonal: 21,63 mm, H × V: 17,3 mm × 13,0 mm) are slightly smaller than the 4/3" type format listed in [Table 1](#).

B.2.1.6 Supplemental information for pixel related specifications

B.2.1.6.1 Examples of suitable reporting statements

B.2.1.6.1.1 Overall examples

Example 1

Camera	Number of effective pixels	8.1 M pixels (including 0.1 M ring pixels)
	Focal length of the lens	7 mm – 21 mm (corresponds to 34 mm to 102 mm for 35 mm film equivalent focal length)
Image sensor	Type	Interline CCD
	Sensor optical format	1/2" type, 4:3 aspect ratio, 8.0 mm diagonal
	Number of total pixels	8.15 M
	Sensor pixel pitch	2.0 microns
	Sensor picture size	6,4 mm x 4,8 mm
Recording	Number of recorded pixels	3,200 x 2,400 (7.7 M) fine mode 2,560 x 1 920 (4.9 M) standard mode
	Recorded image file format	Conforms to DCF (Design Rule for Camera File system) version 2.0
	Image file size	2.8 MB / frame (fine mode)
	Image data compression ratio	Approx. 1/10 (fine mode)

The data is specified in accordance with ISO 18383

Example 2

Number of effective pixels	8.1 M pixels (including 0.1 M ring pixels)
Image sensor	1/2" type CCD (Number of total pixels = 8.15 M)
Number of recorded pixels	3,200 x 2,400 (7.7 M) fine mode 2,560 x 1 920 (4.9 M) standard mode
Recorded image file format	Conforms to DCF (Design Rule for Camera File system) version 2.0
Image file size	2.8MB / frame (fine mode)
Image data compression ratio	Approx. 1/10 (fine mode)

The data is specified in accordance with ISO 18383

B.2.1.6.1.2 Additional examples of suitable statements for the number of effective pixels

The number of effective pixels is especially important, so additional examples of suitable reporting statements are provided below. The examples marked with an asterisk (*) are the same as one of the examples in [B.2.1.5.2.4](#).

DSC where the number of effective pixels varies with focal length:

"Number of effective pixels 13M"

"Number of effective pixels 13M (Maximum 15M)" *

DSC where the number of effective pixels varies with focal length and includes geometric distortion compensation (excluding digital zoom)

"Number of effective pixels 15M"

"Number of effective pixels 15M, Note that the number of pixels may decrease due to image processing that corrects image distortion" *

"Number of effective pixels (Maximum) 15M"

DSC where a partial number of pixels of the image sensor are used:

"Number of effective pixels 10M, Sensor optical format 1/2.3 type, (Number of total pixels 15M)"

DSC where a partial number of pixels of the image sensor are used and the number of effective pixels varies with focal length:

"Number of effective pixels 10M (Maximum 12M), Sensor optical format 1/2.3 type, (Number of total pixels 15M)"

DSC which includes geometric distortion compensation (excluding digital zoom), where a partial number of pixels on the image sensor is used and the number of effective pixels varies with focal length:

"Number of effective pixels 12M, Sensor optical format 1/2.3 type, (Number of total pixels 15M)"

"Number of effective pixels 12M, Note that the number of pixels may decrease due to image processing that corrects image distortion, Sensor optical format 1/2.3 type, (Number of total pixels 15M)"

"Number of effective pixels (Maximum) 12M, Sensor optical format 1/2.3 type, (Number of total pixels 15M)"

B.2.1.6.2 Influence of geometric distortion image compensation

B.2.1.6.2.1 Use of geometric distortion image compensation

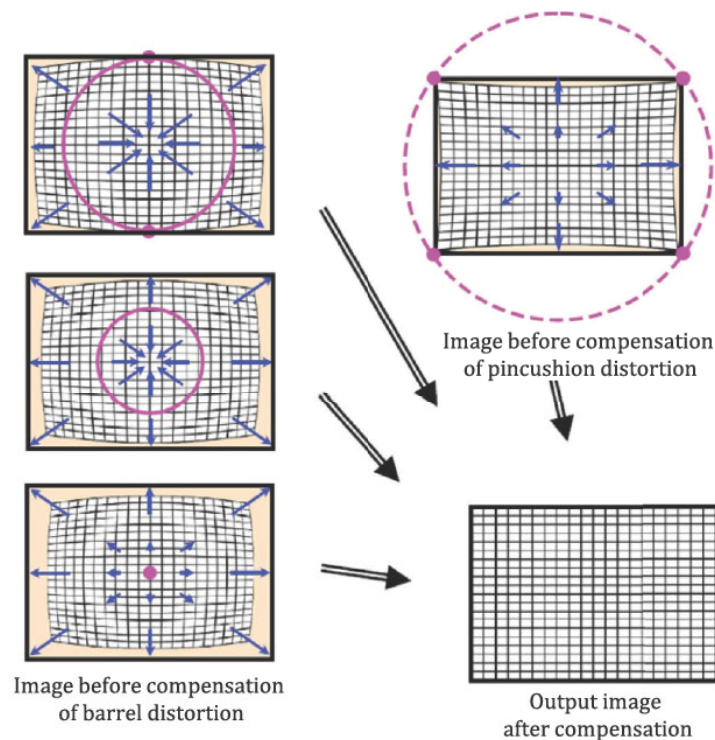
As discussed in [B.2.1.5.2](#), the number of effective pixels in a DSC where the number of effective pixels varies along with the variation of the focal length, and which includes image processing that compensates for geometric distortion (without digital zoom), may be the maximum number of effective pixels.

This part B.2.1.6.2 provides and describes figures which depict examples of geometric distortion compensation that do not use digital zoom. This means that one or more pixels have a compensating magnification of 1 (one). The compensating magnification is the ratio of the distances of the pixel from the image centre before and after compensation.

NOTE The compensating magnification is different from the localized magnification. For the centre, the asymptotic value of the magnification of the neighbouring points is used.

B.2.1.6.2.2 Examples of geometric distortion image compensation without digital zoom

Figure B.3 below depicts images prior to geometric distortion image compensation on the left, and an image after compensation at the lower right. For each of the images on the left, the area that is included in the final output image (i.e. the image area) is indicated with grid lines. The blue arrows indicate the approximate directions in which the pixels are shifted when distortion compensation is performed, but are not intended to indicate the amount of movement of these pixels.



Key

- indicates the location of pixels with compensating magnification of 1.
- indicates that they are located at the contact point or the centre of the picture frame

Figure B.3 — Examples of image distortion compensation without digital zoom

B.2.2 Response time of movie clip

B.2.2.1 Related standard

JEITA CP-3202B: Specification standard for video cameras and camera-recorders.

B.2.2.2 Features and presentation methods

Table B.2 specifies the definition and the presentation of a set of features for response time of movie clip.

Table B.2 — Definition and the presentation of a set of features for response time of movie clip

No.	Features	Guidelines for specifications (definitions) and presentation	Remarks
1	start time of recording after recording paused	Amount of time between the time when the record button is pressed while recording is paused and the power is on, and the time when recording starts Measurement method: See B.2.2.3 Presentation method: — The value shall be given in seconds. Presentation example: — 0,1 s	
2	start time of recording after power off	Amount of time between the time the power is ON and the time that recording starts, in the condition that the recording is paused and then turning power OFF. Measurement method: See B.2.2.3 Presentation method: — The value shall be given in seconds. Presentation example: — 0,2 s	
3	time to automatic termination of record pause	Amount of time between the time the recording is paused and the time that the pause state is automatically terminated, if a recording is left paused Presentation method: — The value shall be given in seconds. Presentation example: — 5 min	

B.2.2.3 Measurement methods

B.2.2.3.1 Conditions for measurement

Unless otherwise specified, measurements should be taken at an ambient temperature of $20\text{ °C} \pm 2\text{ °C}$ and relative humidity of $65\% \pm 5\%$. To ensure measurement accuracy, leave the testing equipment in the measuring environment before testing until the temperature and humidity inside the equipment is sufficiently stable. Measurements may be taken at an ambient temperature of 5 °C to 35 °C and relative humidity of 45% to 75% , if the measured value is same as one measured at an ambient temperature of $20\text{ °C} \pm 2\text{ °C}$ and relative humidity of $65\% \pm 5\%$.

B.2.2.3.2 Arrangement of measuring instruments

The arrangement of the instruments and the DSC for the measurements is illustrated in [Figure B.4](#). The frame counter used in measurements is a signal generator capable of generating a different character every $1/30^{\text{th}}$ of a second. The timing diagram of measurement procedure is illustrated in [Figure B.5](#). The start and stop buttons of the frame counter and the start and stop recording buttons of the DSC must be mechanically or electrically synchronized for the measurements.

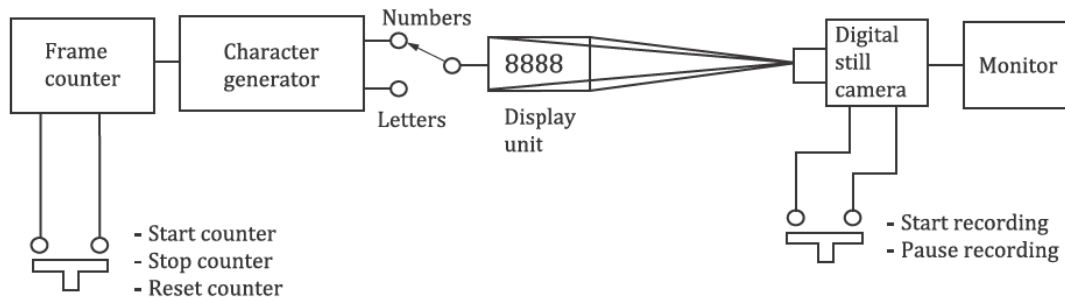
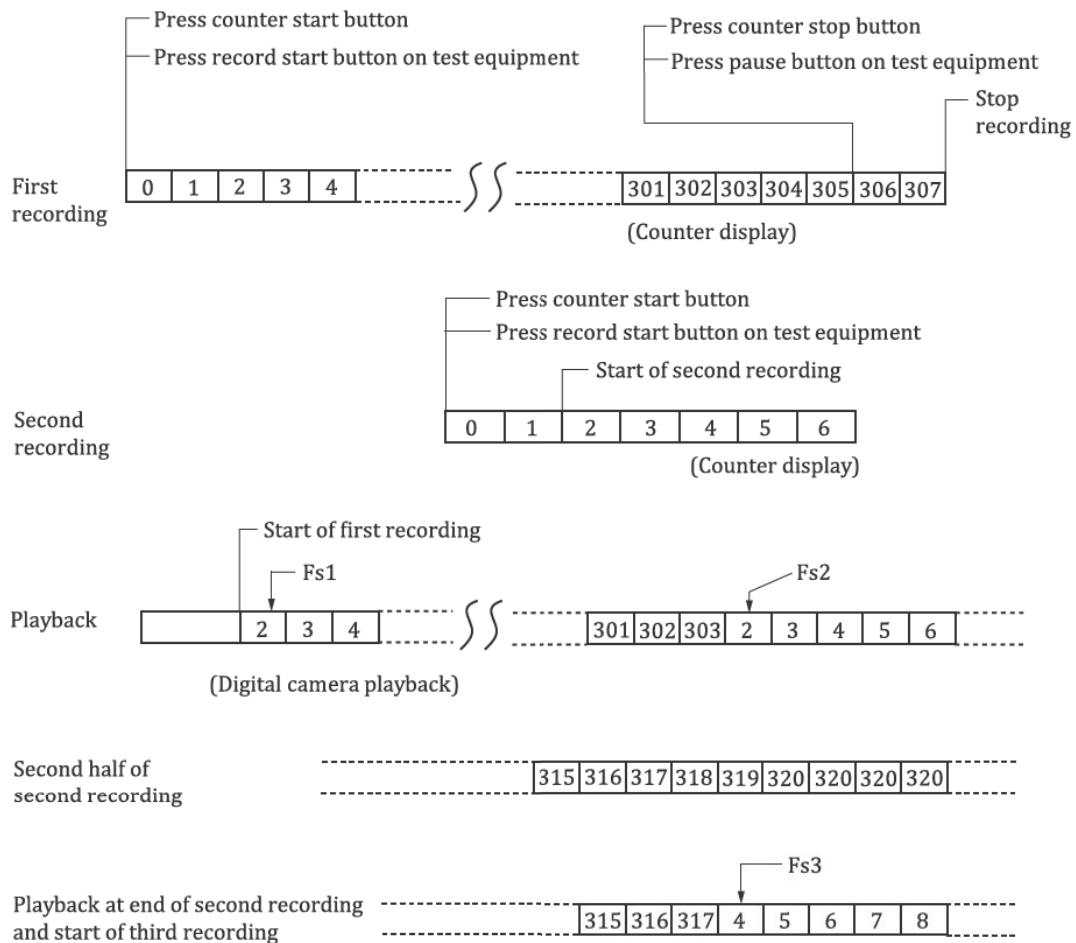


Figure B.4 — Arrangement of measuring instruments

B.2.2.3.3 Measurement signal

The digital camera shoots the frame counter display screen shown in [Figure B.1](#).



NOTE For even numbers, switching to letters is easier to follow.

Figure B.5 — Timing diagram

B.2.2.3.4 Measurement procedure

B.2.2.3.4.1 General

The arrangement of the instruments and the DSC for the measurements is illustrated in [Figure B.4](#). The frame counter used in measurements is a signal generator capable of generating a different character every 1/30th of a second. The timing diagram of measurement procedure is illustrated in [Figure B.5](#). The start and stop buttons of the frame counter and the start and stop recording buttons of the DSC must be mechanically or electrically synchronized for the measurements.

B.2.2.3.4.2 Start time of recording after recording pause

- a) Reset the frame counter.
- b) Place the DSC in record standby mode.
- c) Wait about 30 s for the equipment to stabilize.
- d) Simultaneously press the start button on the frame counter and the record start button on the DSC.
- e) Record for 10 s or longer.
- f) Simultaneously press the stop button on the frame counter and the pause button on the DSC to stop recording.
- g) Press the reset button on the frame counter.
- h) Wait about 30 s in standby mode.
- i) Repeat steps d) to h) a total of six times to obtain six recorded movie clips.
- j) Play the six recorded movie clips frame-by-frame or in slow motion, skipping the first recorded movie clip.
- k) Note the numbers (F_{s2} to F_{s6}) for the first recorded frames for second through sixth movie clip. Use either frame number if the recordings overlap.
- l) The frame numbers are the start time of recording. Calculate average value F_s with the following [Formula \(B.2\)](#):

$$F_s = \frac{F_{s2} + F_{s3} + F_{s4} + F_{s5} + F_{s6}}{5} \quad (\text{B.2})$$

- m) Calculate start time of recording, T_s (in seconds).

$$1 \text{ frame} = 1/30 \text{ s}$$

B.2.2.3.4.3 Start time of recording after power off

- a) Reset the frame counter.
- b) Place the DSC in record standby mode.
- c) Wait about 30 s for the equipment to stabilize.
- d) Simultaneously press the start button on the frame counter and the record start button on the DSC.
- e) Record for 10 s or longer.
- f) Simultaneously press the stop button on the frame counter and the pause button on the DSC to stop recording.
- g) Press the reset button on the frame counter.

- h) Turn the power of the DSC off.
- i) Wait two to three minutes.
- j) Turn the power of the DSC on.
- k) Repeat steps d) to j) a total of six times to obtain six recorded movie clips.
- l) Play the six recorded movie clips frame-by-frame or in slow motion, skipping the first recorded movie clip.
- m) Note the numbers (F_{s2} to F_{s6}) for the first recorded frames for second through sixth movie clip. Use either frame number if the recordings overlap.
- n) The frame numbers are the start time of recording. Calculate average value F_s with the following [Formula \(B.3\)](#):

$$F_s = \frac{F_{s2} + F_{s3} + F_{s4} + F_{s5} + F_{s6}}{5} \quad (\text{B.3})$$

- o) Calculate start time of recording, T_s (in seconds).

1 frame = 1/30 s

B.2.3 Presentation methods for compressed audio and/or video recordings

B.2.3.1 Related standard

JCPR-3451A: Presentation method of compressed recording for motion picture and sound for digital still cameras (movie/still).

B.2.3.2 Features and presentation methods

When reporting any features in [Table B.3](#), the presentation methods specified in this table shall be used.

NOTE If there are specific or multiple record modes, clarify correlations between the modes and the value of the following features.

Table B.3 — Features and presentation methods

No.	Features	Presentation methods	Examples
1	Recording format file format (video)	The compressed recording format and file format for video shall be reported.	— MPEG-4 AVC/H.264 — Motion JPEG
2	Number of recorded pixels and aspect ratio (video)	The number of pixels in 1 recorded frame on the recording media shall be reported as horizontal pixels x vertical pixels Includes pixels from interpolation of the original image or other image processing. Abbreviations acceptable as long as relation with number of pixels is clear. Also screen aspect ratio should be reported as 4:3 or 16:9 as necessary.	— 1 920 × 1 080 pixels — 1 920 × 1 080,16:9 — VGA (640 × 480) — 320 × 240 pixels,4:3
3	Frame rate (video)	The number of video frames recorded per second shall be reported as frames/second or fps For compressed formats encoded in fields, the number of video fields recorded per second shall be reported as fields/second. Denote variable frame rates taken with slow shutter or other special modes. Video frames are defined in B.2.2.3 .	— 15 frames/second — 15 fps — 30 fields/second — Approx. 15 fps (variable, max 20 fps) An example of NOTE: In auto slow shutter mode, frame rate is 15 fps due to shooting illumination conditions.
4	Recording rate (video)	The coded bit stream rate when recording video shall be reported as bit rate, bits/second, or bps. Average, minimum, and max values shall be reported for variable rates.	— Mbps — Approx. 2 Mbps (variable, max 2.5 Mbps)
5	Recording format and channel (audio)	The compressed recording format and file format for audio shall be reported. Also whether the audio is stereo or monaural shall be reported.	— Dolby Digital, 2 ch — Dolby Digital; 5,1 ch — Linear PCM, monaural
6	Sampling rate bit length (audio)	The audio sampling rate and bit length when recording shall be reported in kHz and bits, respectively.	— 44,1 kHz;16-bit
7	Recording rate (audio)	The coded bit stream rate when recording audio shall be reported as bit rate, or bps.	— 64 kbps
8	Accompanying audio	Enter Whether video has accompanying audio or not shall be reported. If it does, following features 5 to 7 in this table should be reported as necessary.	

Table B.3 (continued)

No.	Features	Presentation methods	Examples
9	Recording time	The average time that can be recorded on a unit of media of specified volume under standard recording conditions shall be reported. The units are hours, minutes and seconds. If continuous recording time falls below the above recording time due to limitations with equipment or recording media, make a special note for continuous recording time.	— Example 1: Approx. 10 min and 20 s. (16 MB memory, 320 × 240 pixels, 15 frames/second) — Example 2: Recording time: Approx. 10 min and 20 s. (16 MB memory, fine mode) Continuous recording time: 1 min and 30 s. — Example 3: Approx. 10 min and 20 s. (16 MB memory, 320 × 240 pixels, 15 frames/second) There may be limitations on continuous recording time due to recording media.
10	Playable environment	A list of devices that can play the recorded and compressed audio and/or video, such as, the unit itself or software with version number and operating platform, shall be reported.	— Unit itself — Windows Media Player — QuickTime — Name of dedicated application

B.2.3.3 Video frame

B.2.3.3.1 Definition

Frame comprised of data including “Video Data” for the recorded moment where;

“Video Data” is a video frame of a moving subject. The image data of the moving subject can be the full image data or image difference data for screens either before or before and after the frame. Further, the difference data may be only motion vector information.

B.2.3.3.2 Examples

EXAMPLE 1 If video data contain the full image data, recorded frame F4 contains subject image data (f3) for moment t3 as given in [Figure B.6](#) and does not include subject image data (f4) corresponding to the frame when video of the subject was taken. Thus, recorded frame F4 is not a video frame.

EXAMPLE 2 If the image output frame rate is 15 fps and the recorded frame rate is 30 fps, the frame rate including video data is regulated by the image output frame rate. The image frame rate cannot exceed 15 fps despite the higher recorded frame rate.

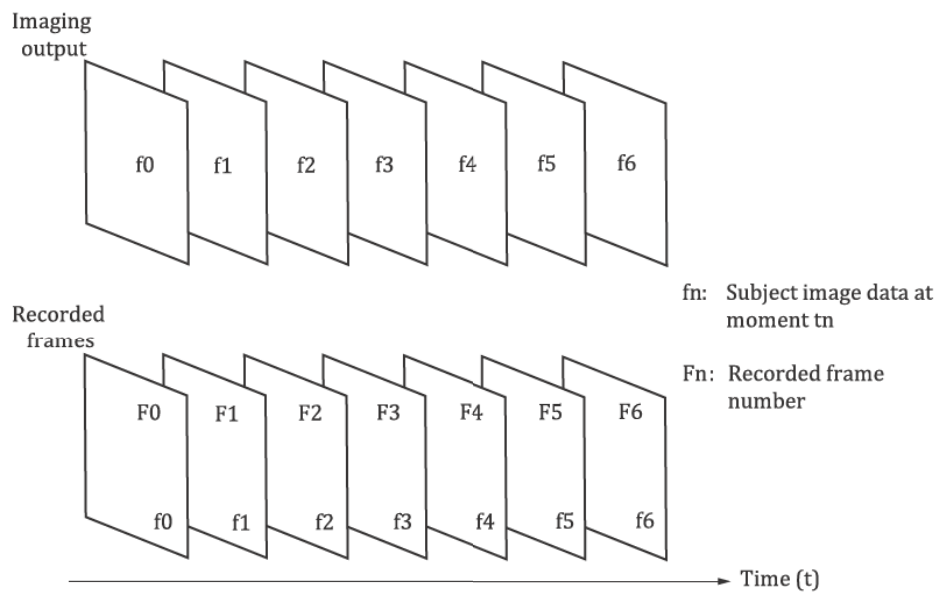


Figure B.6 — Schematic view of video frames

B.3 List of related standards

B.3.1 Available shutter speeds (exposure times)

B.3.1.1 General

Shall comply with CIPA DCG-008-2022: Guideline for Presentation Method of Shutter Speed on Digital Cameras. Its contents referred by No.8 on [Table 2](#) (in [4.2.3](#)) in this document are transcribed below.

B.3.1.2 Numeric table of shutter speed display values

Table B.4 — Shutter speed display values

TV value	Shutter speed display value			
	s			
	TV-1/3	TV±0	TV+1/3	TV+1/2
-5		30, 32	25	20
-4	20	15, 16	13	10
-3	10	8	6	6
-2	5	4	3.2	3
-1	2,5	2	1,6	1,5
0	1,3	1	0,8; 1/1,3	0,7; 1/1,5
1	0,6; 1/1,6	0,5; 1/2	0,4; 1/2,5	0,3; 1/3
2	0,3; 1/3	1/4	1/5	1/6
3	1/6	1/8	1/10	1/10
4	1/13	1/15	1/20	1/20
5	1/25	1/30	1/40	1/45
6	1/50	1/60	1/80	1/90

Table B.4 (continued)

TV value	Shutter speed display value			
	s			
	TV-1/3	TV±0	TV+1/3	TV+1/2
7	1/100	1/125	1/160	1/180
8	1/200	1/250	1/320	1/350
9	1/400	1/500	1/640	1/750
10	1/800	1/1 000	1/1 250	1/1 500
11	1/1 600	1/2 000	1/2 500	1/3 000
12	1/3 200	1/4 000	1/5 000	1/6 000
13	1/6 400	1/8 000	1/10 000	1/12 000
14	1/12 800	1/16 000	1/20 000	1/24 000
15	1/25 600	1/32 000	1/40 000	1/48 000
16	1/51 200	1/64 000	1/80 000	1/96 000
17	1/102 400	1/128 000	1/160 000	1/192 000
18	1/204 800	1/256 000	1/320 000	1/384 000
19	1/409 600	1/512 000	1/640 000	1/768 000
20	1/819 200	1/1 024 000	1/1 280 000	1/1 536 000
21	1/1 600 000	1/2 048 000	1/2 560 000	1/3 072 000
22	1/3 200 000	1/4 096 000	1/5 120 000	1/6 144 000
23	1/6 400 000	1/8 192 000	1/10 240 000	1/12 280 000

B.3.1.3 Numerical value series for abbreviated indication

Abbreviated indication can be used for numerical values having many digits.

Abbreviated indication is possible at speeds of 1/1 000 or lower, and, when indication is abbreviated, numerical values based on the numerical value series for abbreviated indication in [Table B.5](#) shall be indicated. Numerical values specified for TV±0 shall be taken to be mandatory, and numerical values specified for TV-1/3, TV+1/3 or TV+1/2 shall be taken to be arbitrary. Either of the values may be used for shutter speed display values for which multiple numerical values are given.

Example When TV = 22 and the shutter speed display value is 1/4096000, the following abbreviated indication is allowed.

“1/4096K”, “1/4000K”, “4096K”, “4000K”

Table B.5 — Numerical value series for abbreviated indication of shutter speeds

TV value	Shutter speed display value			
	s			
	TV-1/3	TV±0	TV+1/3	TV+1/2
10		1/1 000	1/1 250	1/1 500
11	1/1 600 1/1 500	1/2 000	1/2 500	1/3 000
12	1/3 200 1/3 000	1/4 000	1/5 000	1/6 000
13	1/6 400 1/6 000	1/8 000	1/10 000	1/12 000
14	1/12 800 1/12 500	1/16 000 1/15 000	1/20 000	1/24 000

Table B.5 (continued)

TV value	Shutter speed display value				
	s				
	TV-1/3	TV±0	TV+1/3		TV+1/2
15	1/25 600 1/25 000	1/32 000 1/30 000	1/40 000		1/48 000 1/45 000
16	1/51 200 1/50 000	1/64 000 1/60 000	1/80 000		1/96 000 1/90 000
17	1/102 400 1/100 000	1/128 000 1/125 000	1/160 000 1/150 000		1/192 000 1/180 000
18	1/204 800 1/200 000	1/256 000 1/250 000	1/320 000 1/300 000		1/384 000 1/350 000
19	1/409 600 1/400 000	1/512 000 1/500 000	1/640 000 1/600 000		1/768 000 1/750 000
20	1/819 200 1/800 000	1/1 024 000 1/1 000 000	1/1 280 000 1/1 250 000		1/1 536 000 1/1 500 000
21	1/1 600 000 1/1 500 000	1/2 048 000 1/2 000 000	1/2 560 000 1/2 500 000		1/3 072 000 1/3 000 000
22	1/3 200 000 1/3 000 000	1/4 096 000 1/4 000 000	1/5 120 000 1/5 000 000		1/6 144 000 1/6 000 000
23	1/6 400 000 1/6 000 000	1/8 192 000 1/8 000 000	1/10 240 000 1/10 000 000		1/12 280 000 1/12 000 000

B.3.1.4 Formulae used to calculate faster shutter speed display values outside the ranges in Table B.4

a) ±0 and ±1/3 series

The numerical value obtained by multiplying the following numerical value series in the order -1/3, ±0 and +1/3 by 10 to the nth power is taken as the denominator of shutter speed display values.

1 024, 1 280, 1 600, 2 048, 2 560, 3 200, 4 096, 5 120, 6 400, 8 192, (returns to 1 024)

Example TV = 24-1/3

As the previous step is TV = 23+1/3 and the shutter speed display value is 1/10240000 (= 1/(1 024 × 10⁴)), the value following 1 024 in the above mentioned numerical value series (i.e. 1 280) is used to perform calculation as follows.

“Shutter speed display value of TV = 24-1/3” = 1/(1 280 × 10⁴) = 1/12 800 000

b) ±1/2 series

If the TV value of the shutter speed display value to be displayed is taken to be A, then the shutter speed display value of the TV value after subtracting 1 from A is taken to be B. After multiplying B by 1/2, the numerical value of the denominator while halving this value B has four effective digits, and the result of discarding digits past these four digits is taken to be the shutter speed display value in the case of TV value A.

Example TV = 24+1/2

A = 24+1/2

A-1 = 23+1/2

B = “Shutter speed display value when TV value A-1 (= 23+1/2)” = 1/12 280 000

“Shutter speed display value when TV value 24+1/2” = 1/12 280 000 × 1/2 = 1/24 560 000.

B.3.2 Mass and dimensions

Shall comply with CIPA DCG-005–2009: Measurement and Description Method for Weight and Dimensions of Digital Cameras.

Annex C (informative)

Commentary

C.1 Application to other products

Although this document is intended to be applied to consumer digital still cameras (DSCs), this document may be applied to manufactured devices with features similar to those for DSCs.

C.2 Application of the specifications for other products

In the current market, there are many manufactured devices and functional components that have DSC-like capabilities, even though their primary function is not taking photographs. While some standards established for such devices and components describe features associate with photography, the application of these standards to DSCs should proceed with sufficient caution.

C.3 Measurement methods

In order to clarify the measurement methods, the measurement fundamentals for the following two items are provided in [Annex A](#):

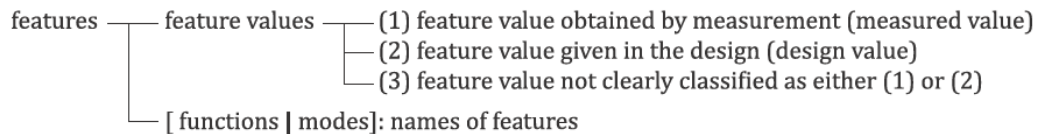
[A.4.1](#) -----Battery life in shooting movie clip

[A.4.2](#) -----AF speed

C.4 Classification of features

Features can be classified “feature values” and “[functions | modes]”. Moreover, “feature values” are basically classified into those obtained by measurement (measured values) and those given in the design (design values); however, there are some that are difficult to clearly classify as measured values or design values.

The classifications based on the above definitions are shown below.



C.5 Further clarification of definitions of “image stabilizer” and “blur reduction”

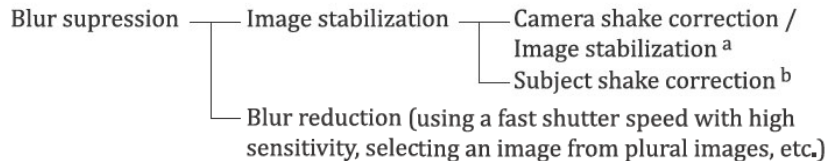
Further clarification is given of the definitions of “image stabilization” and “blur reduction.” Also indicated are “terminology relating to blurring,” examples of “output by blur detecting devices,” definition of the “image stabilizer” function and examples, the definition of “blur reduction” and examples, cases where the image stabilizer function has a different method and subject, and when both the image stabilizer function and blur reduction are present.

a) Terminology relating to blurring

“Blur” is interpreted as displacement from a given position, and when used as camera terminology, blur can be broadly classified into “camera shake” and “subject shake”.

“Camera shake” refers to blurring of the subject in shot images as a result of camera movement due to instability of the hand(s) holding the camera. “Subject shake” refers to blurring of the subject in shot images as a result of movement of part or all of the subject during shooting irrespective of whether or not there is camera shake.

Note that although “vibration isolation” is known as a method of preventing shake, “vibration isolation” is used in regard to equipment that prevents vibration from being applied to the camera itself, and is therefore terminology from a different field to image stabilization.



- ^a Optical systems (VAP, lens shift systems, sensor shift system, etc.).
Electronic systems (image synthesis, image restoration, etc.).
Hybrid systems (concurrently using an optical system and an electronic system).
- ^b Electronic systems (image synthesis, etc.).

1) Blur suppression

The expressions “image stabilizer” and “blur reduction” are generic terms and refer to the suppression of “camera shake” and/or “subject shake” by some kind of control means provided in a camera. “blur suppression” is broadly classified into “image stabilizer” and “blur reduction”.

2) Image stabilizer

This refers to a function that uses the output by a blur detection device to correct blurring in output images caused by movement of the camera itself (due to camera shake or the like) and/or movement of the subject. However, even if the output by a blur detection device is used, systems where shooting is carried out using a fast shutter speed as a result of optimization by an exposure control program and systems where no significant improvement is observed in output images in which blur has been corrected are regarded as b) “blur reduction.”

The category “image stabilizer” is divided into “camera shake correction” and “subject shake correction.” Optical, electronic and hybrid systems exist for “camera shake correction.”

3) Blur reduction

This refers to a function or mode that reduces blurring in output images caused by movement of the subject and/or camera shake and its main means is using a fast shutter speed as a result of optimization by an exposure control program. Although blur reduction is one method of an exposure control mode and a sensitivity control mode, there are no problems with this function being separately referred to as a blur reduction function or mode.

b) Examples of “output by blur detection device”

- 1) Measurement using a gyro-sensor or the like.
- 2) Measurement by comparing images from continuous shooting (motion vectors between continuously shot images or the like)

3) Measurement through analysis of blur in single images (calculation of the blur function)

c) Explanation of “image stabilizer” and examples

1) Explanation

The image stabilizer function is interpreted here to mean a function that uses the output by a blur detection device to correct blurring in output images caused by movement of a camera itself (due to camera shake or the like) and/or movement of the subject. Accordingly, if there is significant deterioration in image quality as a side effect of correction when no significant correcting effect has been achieved, or when the probability of a correcting effect being obtained is extremely low, it is not possible to regard the technology being used as “image stabilizer” technology.

2) Optical, electronic, and hybrid systems

Out of the examples of the image stabilizer function given below in 3) i) and ii) are called optical systems, while iii) to v) are called electronic systems. Systems that use a combination of optical and electronic technology are called “hybrid systems” and usually have characteristics of both types of technology. Examples of hybrid systems are listed below.

- Systems where optical and electronic technology operates simultaneously.
- Systems that appropriately switch between optical and electronic technology according to the shooting conditions and the extent of the camera shake.
- Systems where correction according to an optical system and correction according to an electronic system are carried out on different axes, with both systems being present.

3) Examples of systems that are considered to be suitable for classification as “image stabilizer” systems. (NB. These are just examples, and the image stabilizer function is not limited to such.)

- i) A method where subject displacement in the image caused by camera shake is corrected by moving part or all of the lens in parallel relative to the image sensor using the output by a blur detection device.
- ii) A method where subject displacement in the image caused by camera shake is corrected by rotating or moving in a perpendicular direction relative to the optical axis using the output by a blur detection device.
- iii) A method where multiple images with reduced blur are taken at a fast shutter speed and such images are combined (aligned etc.) using the output by a blur detection device to obtain an output image with reduced blur and virtually the same image quality (S/N) as an image shot at the usual shutter speed.
- iv) A method where an image with reduced blur shot at a fast shutter speed and an image shot at the usual shutter speed are combined (aligned etc.) using the output by a blur detection device to obtain an output image with reduced blur and virtually the same image quality (S/N) as an image shot at just the usual shutter speed.
- v) A method that is based on processing using a point spread function, an inverse filter or the like and uses information output by a blur detection device to restore an image with little blur from a shot image.

d) Explanation of “blur reduction” and examples

1) Explanation

Blur reduction is interpreted here to mean a function or mode of reducing blurring in output images that is caused by movement of the subject and/or camera shake. It is mainly achieved using a fast shutter speed as a result of optimization by an exposure control program. In this way, since “image stabilization” and “Blur reduction” have very different technical aspects, such expressions should not be confused.

2) Characteristics of “blur reduction”

Example characteristics of blur reduction are given below.

Merits: Since blur reduction can be achieved simply by optimization of an exposure control program, implementation is simple and such technology is also effective against subject shake.

Demerits: Since high ISO sensitivity is required in many cases, there is increased noise in the shot images.

3) Difference in image quality between “image stabilizer” and “blur reduction”

[Figure C.1](#) shows an example comparison between the blur suppression effects of the image stabilizer function and blur reduction. Although setting the functions of image stabilizer and blur reduction to ON results in a similar reduction in blur, an increase in noise is observed in the image with blur reduction.

In this way, since blur reduction is a method that suppresses blur while mainly sacrificing image quality (and S/N in particular), it is appropriate to regard blur reduction as having no image stabilization effect. Accordingly, when measuring and describing image stabilization effects, it is necessary to pay particular attention to excluding effects achieved by blur reduction.

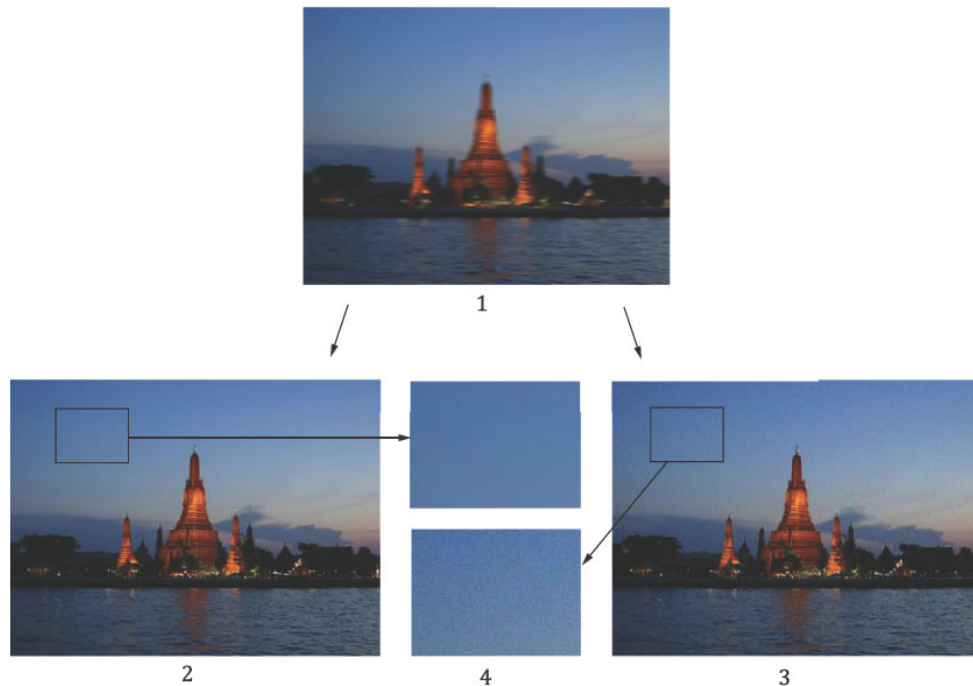


Figure C.1 — Difference in image quality between image stabilization and blur reduction

Examples of systems that are considered to be suitable for classification as “blur reduction” (NB. These are just examples, and blur reduction is not limited to such.)

- i) A method that sets sensitivity higher than in the usual shooting mode, shoots an image with a higher-than-usual shutter speed, and carries out image processing such as edge enhancement to compensate for loss of resolution in the shot image.

- ii) A method that sets sensitivity higher than in the usual shooting mode, shoots an image with a higher-than-usual shutter speed, and carries out image processing such as noise reduction to compensate for S/N deterioration in the shot image.
 - iii) A method that sets sensitivity higher than in the usual shooting mode and shoots an image with a higher-than-usual shutter speed when motion detection for the subject has found that all or part of the subject is moving at a given speed or faster.
 - iv) A method that sets sensitivity higher than for the usual shooting mode, takes multiple shots with a higher-than-usual shutter speed, and records only images that the camera has determined to have the least blurring.
 - v) A method that shoots multiple images while gradually changing the sensitivity and shutter speed, and records only images that the camera has determined to have the best balance between the amount of blur and S/N.
 - vi) A method that shoots at both the usual shutter speed and a higher-than-usual shutter speed, and records the image shot at the usual shutter speed if there is little blurring, or records the image shot at the higher-than-usual shutter speed if there is significant blurring with the usual shutter speed.
- e) Objective axis-dependent and still- or video-dependent image stabilization
- In a camera equipped with a hybrid image stabilizer function, if such camera has several axes where correction is carried out optically and other axes where correction is carried out electronically, this should be clearly indicated to users (see a) below). If the image stabilizer function is also enabled during the shooting of video images, when the correcting system or objective axes for correction are different to those used in shooting still images, care should be taken to clearly indicate such to users (see b) below).
- 1) Yaw/pitch is optically corrected, while up-down, left-right, and rotation are electronically corrected.
 - 2) Correction is carried out on two axes (yaw and pitch) when shooting still images and correction is further carried out on the up-down, left-right, and rotational axes (i.e. a total of five axes) when shooting video images.
- f) Combined use of image stabilizer function and blur reduction
- As described earlier, since the effect of the image stabilizer function and the effect of blur reduction cannot be directly compared, when measuring the effect of the electronic image stabilizer function, it is necessary to completely eliminate the effect of blur reduction. However, since there are many cameras that exhibit the properties described in a) and b) below, sufficient attention needs to be paid when measuring and describing the effect of the image stabilizer function.
- 1) A configuration that functions only as an image stabilizer when there is little blurring, but increasingly functions as a blur reducer according to blurring level. It functions as only a blur reducer at or above a given level of blurring.
 - 2) A configuration that functions as an image stabilizer and blur reducer when there is little blurring, but functions as only a blur reducer at or above a given level of blurring.

Bibliography

- [1] CIPA DCG-002-2023, Specification Guideline for Digital Cameras
- [2] CIPA DC-008-2023, Exchangeable image file format for digital still cameras: Exif Version 2.32
- [3] CIPA DCG-001-2018, "Individual Guidelines for noting digital camera specifications on Number of pixels, Image file and Focal length of the lens"
- [4] CIPA DC-002-2020, Standard procedure for measuring digital still camera battery consumption
- [5] CIPA DC-003-2020, Resolution Measurement Methods for Digital Cameras
- [6] CIPA DC-004-2020, Sensitivity of digital cameras
- [7] CIPA DCG-005-2009, Measurement and Description Method for Weight and Dimensions of Digital Cameras
- [8] CIPA DC-011-2015, Measurement and Description Method for Image Stabilization Performance of Digital Cameras (Optical Systems)
- [9] IEC 61146-1:1994, *Video cameras (PAL/SECAM/NTSC) — Methods of measurement — Part 1: Non-broadcast single-sensor cameras*
- [10] IEC 61146-2:1997, *Video cameras (PAL/SECAM/NTSC) — Methods of measurement — Part 2: Two- and three-sensor professional cameras*
- [11] IEC 61747-1:2003, *Liquid crystal and solid-state display devices — Part 1: Generic specification*
- [12] EIAJ ED-2522, Measuring methods for matrix liquid crystal display modules (liquid crystal display modules using back-light)
- [13] JEITA CP-3202B, Specification standard for color video cameras and camera-recorders
- [14] JEITA CPR-3451A, Presentation method of compressed recording for motion picture and sound for digital cameras (movie/still)
- [15] IEC 61966-2-1:1999, *Multimedia systems and equipment — Colour measurement and management — Part 2-1: Colour management — Default RGB colour space — sRGB*
- [16] ANSI/IS&T IT10.7000:2014, "Digital Still Cameras – Guidelines for Reporting Pixel-Related Specifications"
- [17] ISO 1754:2010, *Photography — Cameras using 35 mm film and roll film — Dimensions of picture sizes*
- [18] CIPA DC-009-2010 "Design rule for Camera File system: DCF Version 2.0 (Edition 2010)"
- [19] CIPA DCG-008-2022 "Guideline for Presentation Method of Shutter Speed on Digital Cameras"
- [20] ISO/TS 20490, *Measuring autofocus repeatability of sharpness and latency*



ICS 37.040.10

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