



Guideline of Camera & Imaging Products Association

CIPA DCG- 005- Translation -2009

Measurement and Description Method for Weight and Dimensions of Digital Cameras

**This translation has been made based on the original Guideline (CIPA DCG-005-2009).
In the event of any doubts arising as to the contents, the original Guideline is to be the final
authority.**

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Measurement and Description Method for Weight and Dimensions of Digital Cameras

1. Introduction

Recently, as digital cameras are in widespread use, their designs and shapes have become more multifaceted. In particular, digital cameras featuring compact, thin and lightweight designs are increasing, and are frequently seen in the catalogs of manufacturers, descriptions stressing the advantages of such features.

Measurement and description methods for weight and dimensions of cameras are stipulated in JCIS 27-1997. Those methods are now unable to be applied just as they are because considerable time has lapsed since their stipulation and also because analogue cameras are being replaced by digital cameras. At present, the figures mentioned in manufacturers' catalogs are measured from their own specific viewpoints, which makes comparing the data in a fair manner difficult.

As the standards and guidelines for digital cameras, CIPA standards (guidelines) have been utilized by worldwide digital camera suppliers when they prepare their catalogs and brochures etc. The standards (guidelines), covering each relevant item such as battery life, resolution, sensitivity and description methods have contributed to fair competition among suppliers.

With this background in mind, this guideline stipulates measurement and description method for weight and dimensions of digital cameras.

2. Scope

This guideline shall be applied to digital still cameras and interchangeable lenses designed primarily for customer use. However, application of this guideline to digital camera accessories for which measurement and description method for weight and dimensions are not individually defined is not prohibited. It is also not prohibited to apply this guideline to hardware such as cell phones which has still image shooting and displaying functions, and to peripheral devices such as photo printers closely related to digital cameras.

This guideline shall not be applied to those items, such as for business or industrial uses, for which individual specifications are agreed between the users and the manufacturers.

This guideline is intended to be used mainly for descriptions in catalogs and other printed materials or home pages in which product specifications are clearly mentioned. However, descriptions for the camera body, individual packaging boxes, advertising and publicity activities, sales promotion POP and so on shall also comply with the aim of this guideline.

3. Overview of the guideline

3-1 Basic concepts

To contribute to the sound progress of our industry by encouraging fair competition, this guideline is stipulated with the basic concepts as follows:

3-1-1 This guideline stipulates measurement methods for “weight and dimensions” and their descriptions on printed materials or home pages.

3-1-2 This guideline does not obligate description of any items in catalogs and other documents but stipulates the description method in case the items are described.

3-1-1 As for specific names which may be necessary in the process of observing this guideline, differentiation of single-byte and double-byte characters or the naming of cameras and camera parts which are customarily used by the supplier may be used as far as they do not cause significant misunderstandings, with the following provisions:

- Items for which standardized names are explicitly stipulated in this guideline or CIPA standards/guidelines, shall be used.
- Item names that may cause any possible confusion with the item names stipulated in this guideline shall not be use different definitions than those stipulated in this guideline.

3-1-4 Weight and dimensions and other items shall be based on the measurement method defined in Chapter 4 and shall be described based on the method stipulated in Chapter 5 of this guideline.

3-2 Responsibility for Claims etc.

Suppliers shall be liable for any claims, suits, and disputes made by a third party concerning weight and dimensions even when those are measured and described according to this guideline.

3-3 Definition of terms

The terms used in this guideline are defined as follows:

3-3-1 Condition of being placed in storage

This term means, for instance, a collapsed condition for collapsible-lens cameras, a closed condition for open/close parts, a folded condition for foldable parts, and contracted condition for extendable parts.

3-3-2 Suppliers

Manufacturers or dealers of digital cameras, the accessories and peripheral devices.

3-3-3 Doubt

Confusing, doubtful or misleading things.

3-3-4 Not prohibited

allowed

3-3-5 Facing page

One page or center-page spread in a catalog.

3-4 Reference standards

3-4-1 List of reference standards

- JCIS 27-1997: Method of indicating mass and dimensions of camera
- CIPA DC-002-2003: Standard procedure for Measuring Digital Still Camera Battery Consumption

3-4-2 Revision of reference standards

When any standards to which this guideline refers are revised, the following steps shall be taken:

- For standards controlled by Camera & Imaging Products Association (CIPA), the revised edition shall be observed.
- For other standards, the provisions described in this guideline shall be observed until this guideline is reviewed.

4. Measurement method

4-1 Weight

4-1-1 Precondition

Weight measurement shall be performed according to “4-1-2 Measurement method,” and “4-1-3 Environmental settings.” If those method and settings cannot be implemented because of various conditions, conform to those method and settings as much as possible.

The number of devices to be tested shall be determined by the supplier.

4-1-2 Measurement method

1) Make preparations according to “4-1-3 Environmental settings.”

2) Measure the weight of the device to be tested using a weight measuring instrument.

[Digital cameras]

- Install the battery used for measurement according to CIPA battery^{*1} consumption measurement method and install the recording medium^{*2} that is most recommended by suppliers.

*1: If multiple types of batteries can be installed, install one of them.

*2: This is not applied to a device to which the recording medium cannot be installed. Even for a device whose internal memory is capable of storing images, install the recording medium if it can be installed. For a device that can contain two or more types of the recording media, install one type of the recording medium.

- Except for the battery and recording media, it is not prohibited to remove a detachable accessory but an accessory that can not be removed without a tool must remain installed.

[Interchangeable lens]

- It is not prohibited to remove a detachable accessory. An accessory that cannot be removed without a tool must be kept installed.
- It is not prohibited to remove a pedestal to fix a tripod stand if it can be detached without a tool.

[Accessories]

- When applying this guideline to camera accessories for which measurement and description methods for weight and dimensions are not defined, install a specified battery for accessories such as the external flash, battery grip, remote control which function only when a battery is installed, the same as with a digital camera.

4-1-3 Environmental settings

1) Temperature and humidity during measurement

Normal temperature and humidity (reference values: $23\pm 2^{\circ}\text{C}$, 85% or less)

2) Weight measurement instrument

Although not specifically stipulated in this guideline, perform measurement using a reliable

instrument that leaves no doubt in measurement results.

4-2 Dimensions

4-2-1 Precondition

Dimension measurement shall be performed in the storages condition according to “4-2-2 Measurement method,” and “4-2-3 Environmental settings.” If those methods and settings cannot be implemented because of various conditions, conform to the method and settings as much as possible.

The number of devices to be tested shall be determined by the supplier.

4-2-2 Measurement method

- 1) Make preparations according to “4-2-3 Environmental settings.”
- 2) Take a measurement from a specific part of the device to be tested from a design drawing (such as a CAD drawing). Alternatively, make a physical measurement using a measuring instrument (such as a vernier calipers).

[Digital cameras]

- The minimum dimensions of a rectangular solid (Fig. 6-1-1) which contains a digital camera is defined, and its three sides shall be the outside dimensions of the device. Here, one side of the rectangular solid shall be paralleled with an optical axis as a rule. If smaller rectangular solid can be defined when one side is not paralleled with the optical axis (Fig. 6-1-2), this rule is not mandatory. For a cylinder-shaped digital camera, the outside dimensions shall be a diameter and a height (length) of a cylinder that contains the camera.
- Here, if a surface has a total area that is 20% or less of a protruding surface when viewed from a vertical direction of one side and has a protrusion whose length is 10% or less of vertical dimension of the surface, the part shall be regarded as a protrusion. In this case, it is not prohibited to exclude the dimensions of the protrusion from the outside dimensions (Fig. 6-1-3).
- A telephoto lens (including peripheral parts) shall not be excluded as a protrusion even if the area is 20% or less of the projection area because the lens is a critical part of the camera. However, a flexible-type telephoto lens may be excluded only if the surface area and the protrusion length is 10% or less (Fig. 6-1-4).
- For a protruding part in which only the peripheral portion is protruding, the entire portions including the internal portion shall be regarded to be protruding (Fig. 6-1-5). In this case, even if part of the protrusion is non-continuous, it shall be regarded to be continuous (Fig. 6-1-6).
- For a protruding part whose cross-sectional area increases or decreases along the vertical direction like circular cone or pyramid, calculate the area rate at the point where the cross-sections are largest (Fig. 6-1-7).
- Figs 6-2-1 to 6-2-7 show reference examples of outside dimension measurements. In the case of a shape falling outside the above examples, measuring portions shall be carefully selected according to the intent of this guideline so as not to cause doubt for users.

[Interchangeable lens]

- The outside dimensions of an interchangeable lens shall be the maximum diameter of a circular portion and the length between the mount face and the tip of the lens.

When the rear portion of the lens is protruding from the mount face, the entire length of the lens shall be the length between the tip of the protrusion and the tip of the lens.

- In this instance, it is acceptable to exclude a protrusion (if one exists) on the circular portion of the outside dimensions. It is also not prohibited to exclude a pedestal or rectangular portion to which the tripod stand is installed from the outside dimensions.

[Accessories]

- When applying this guideline to camera accessories for which measurement and description method for weight and dimensions are not individually defined, conform to the measurement for digital cameras described above.

4-2-3 Measuring Environment

1) Temperature and humidity during measurement

Normal temperature and humidity (reference values: $23\pm 2^{\circ}\text{C}$, 85% or less)

This is not applied when taking measurements from a design drawing (such as a CAD drawing).

2) Dimension measuring instrument

Although not stipulated in this guideline, perform measurement using a reliable instrument that leaves no doubt in measurement results.

5. Description method

5-1 Weight

Instruction manuals, catalogs and home pages etc. shall describe measured values based on the measurement method defined in Chapter 4. The measurement condition or other conditions may be omitted in the above description. If multiple batteries are present for CIPA battery consumption measurement or multiple types of recording media can be installed, however, the information (at least the model number or type) to identify the battery or recording media used for weight measurement shall be described.

For an interchangeable lens that does not include a pedestal portion for fixing a tripod stand, append a note accordingly. It is not prohibited to describe other values as far as the following articles are met.

- 1) The values shall be listed in the body weight description column in the specification column, and the measurement conditions shall also be described with expressions that do not raise questions. The descriptions of the values shall be less conspicuous than those of the body weight.
- 2) If a weight item except for the body weight is described separately in a section other than the specifications column, the above 1) condition shall be met, and the measurement condition shall be appended with expressions at least on facing page, that do not raise questions.

If the following expressions*³ or words similar to them are used, extreme care shall be taken not to confuse users.

*3: the lightest in its class (except for XXX, etc.)

The units and significant digits of the weight to be mentioned shall be according to the following Table 5-1 as a rule.

Table 5-1 Weight

	Less than 100g	100g and more and less than 1000g	1000g and more
In units of 0.1g (Rounding up the second decimal in unit of 0.1g)	X	N/A	N/A
In units of 1g (Rounding up the first decimal in unit of 1g)	X	X	N/A
In units of 5g (Rounding up the first place in unit of 5g)	N/A	X	X
In units of 10g (Rounding up the first place in unit of 10g)	N/A	N/A	X

Description examples of weight in instruction manuals, catalogs, and home pages are shown below.

5-1-1 Cameras

<Description example 1>

- Weight: 125g (CIPA guideline compliant)

<Description example 2>

- Weight: 99g (including the battery and memory card bundled with the camera.)

81g (body only)

<Description example 3>

- Weight: 109g (including the battery and recording medium bundled with the camera.)

119g (optional nickel metal-hydride battery and recommended recording media are included.)

<Description example 4>

- Weight: 865g (including the batteries and recording medium bundled with the camera.)

1080g (including the batteries and recording medium bundled with the camera, and the interchangeable lens KL18-55mm is attached.)

5-1-2 Interchangeable lenses

<description example 1>

- Weight: 2500g

<Description example 2>

- Weight: 2230g (the pedestal to secure the tripod stand is excluded.)

<Description example 3>

- Weight: 2500g

2230g (the pedestal to secure the tripod stand is excluded.)

5-1-3 Accessories

<Description example 1>

- Weight: 255g (the batteries are included.)

<Description example 2>

- Weight: 345g (the battery is included.)

285g (body only)

5-2 Dimensions

Instruction manuals, catalogs and home pages shall describe the values measured based on the measurement method defined in Chapter 4. The measurement condition or other conditions may be omitted in the above description. It is not prohibited to describe other values as long as the following articles are met.

- 1) The values shall be listed in the body dimensions description column within the specification column. The measurement condition shall be described with expressions that do not confusion,

and shall be less conspicuous than that of the body dimensions. In this instance, it is not prohibited to append a figure to avoid confusion.

- 2) If a dimension item except for the body dimensions is described separately in a section other than the specifications column, the above condition shall be met, and the measurement conditions shall be described with expressions that do not cause any confusion, and should be listed in the same area or at least on the facing page.

If the following expressions*⁴ or words similar to them are used, extreme care shall be taken not to cause confusion for users.

*4: the body thickness, the thinnest portion, except for XXX, etc.

The units and significant digits of the listed dimensions shall follow Table 5-2 as a rule.

Table 5-2 Dimensions

	Less than 10mm	10mm or more and less than 1000mm	1000mm or more
In units of 0.1mm (Rounding up the second decimal place in units of 0.1mm.)	X	X	N/A
In units of 0.5mm (Rounding up the first decimal place in units of 0.5mm.)	X	X	N/A
In units of 1mm (Rounding up the first decimal place in units of 1mm.)	N/A	X	X
In units of 10mm (Rounding up the one place in units of 10mm.)	N/A	N/A	X

Notation examples of instruction manuals, catalogs, and home pages are shown below.

5-2-1 Cameras

<Description example 1>

- Dimensions: 112.1mm (width) x 56.2mm (height) x 18.8mm (depth)

<Description example 2>

- Outside dimensions: 112.1mm (W) x 56.2mm (H) x 18.8mm (D) (CIPA guideline compliant)

<Description example 3>

- Outside dimensions: 112.1mm (W) x 56.2mm (H) x 18.8mm (D)
112.1mm (W) x 56.2mm (H) x 16.5mm *⁵(D)

*5: Lens and the peripheral protrusions are excluded.

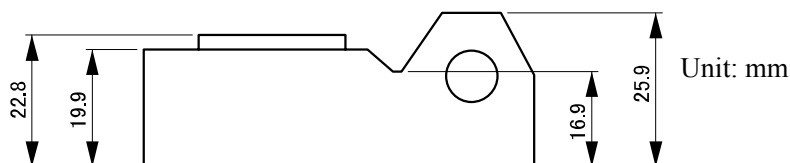
<Description example 4>

- Outside dimensions (W x H x D) 112.1 x 56.2 x 18.8 (16.5*⁶) mm

*6: Lens and the peripheral protrusions are excluded.

<Description example 5> When a figure is included:

- Outside dimensions: 125.7mm (W) x 63.1mm (H) x 25.9mm (D)



5-2-2 Interchangeable lenses

<Description example 1>

- Outside dimensions: $\phi 85\text{mm} \times 245\text{mm}$

<description example 2>

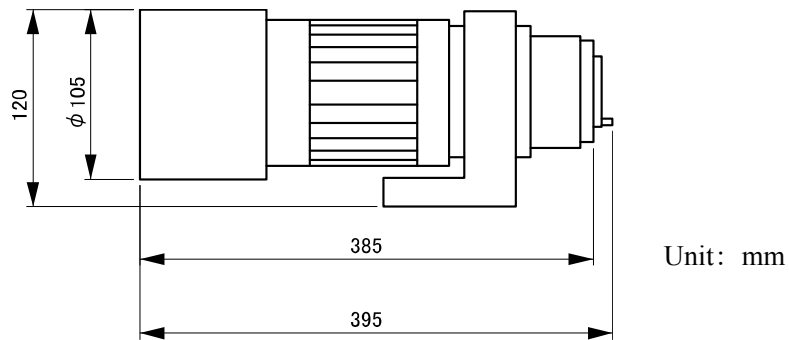
- Outside dimensions: $\phi 85\text{mm} \times 245\text{mm}$ (255m: entire length)

<Description example 3>

- Outside dimensions: $\phi 105\text{mm} \times 385\text{mm}$
 $\phi 105\text{mm} \times 395\text{mm}$ (entire length)

<Description example 4> When a figure is included:

- Outside dimensions: $\phi 105\text{mm} \times 385\text{mm}$



5-2-3 Accessories

<Description example 1>

- Outside dimensions: 58.0mm (W) x 83.2mm (H) x 9.9mm (D)

<Notation example 2>

- Outside dimensions: 58.0mm (W) x 83.2mm (H) x 9.9mm (D)
58.0mm (W) x 83.2mm (H) x 12.1 mm (D) (Protection cover is included.)

6. Appendix

6-1 Reference figures

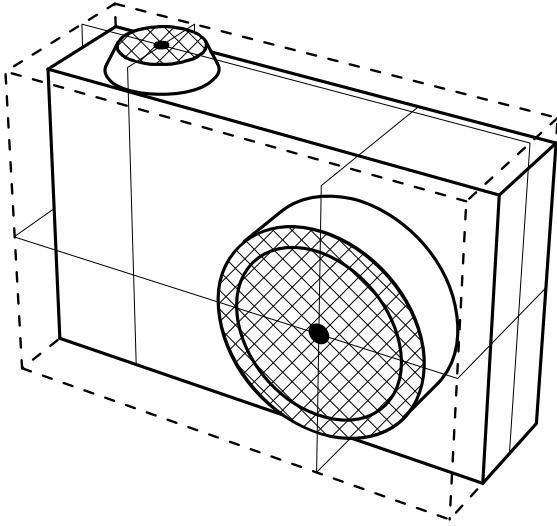


Fig. 6-1-1

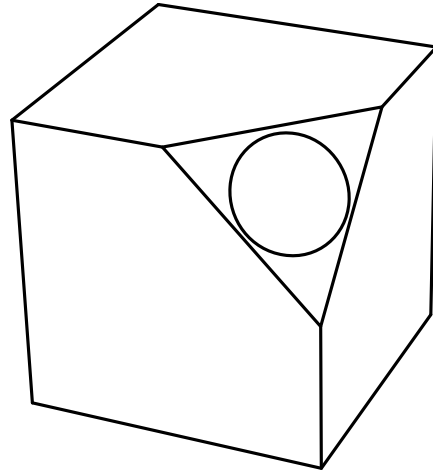


Fig. 6-1-2

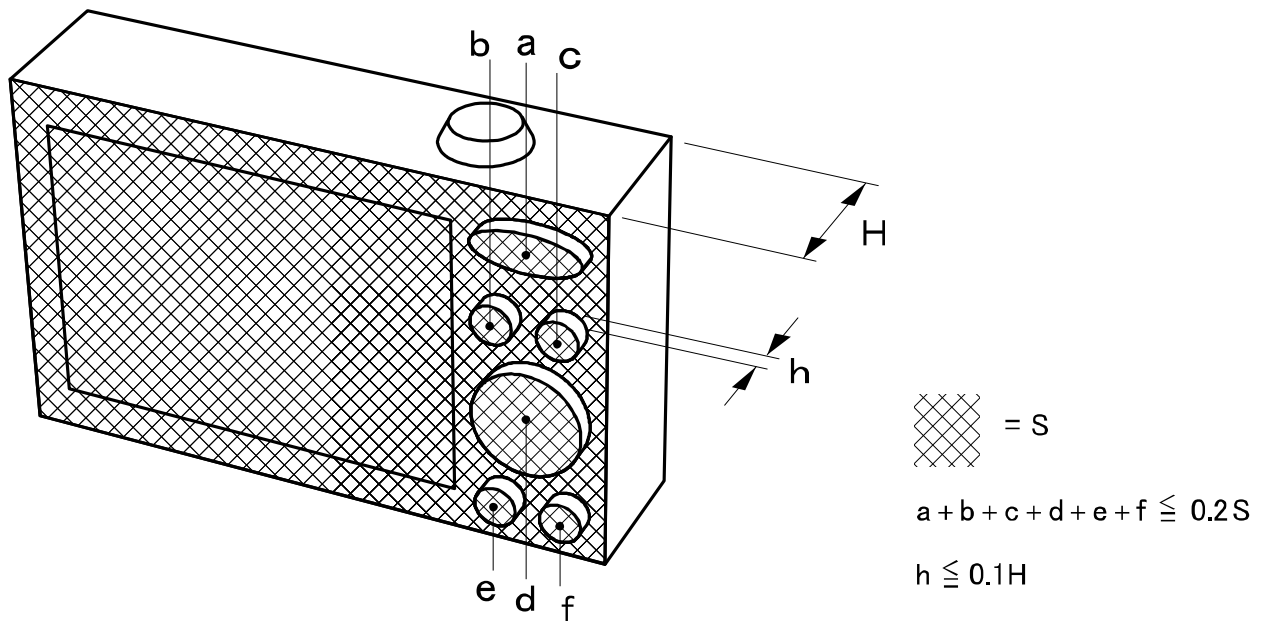


Fig. 6-1-3

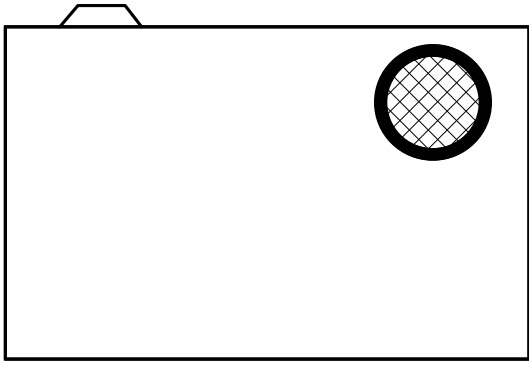


Fig. 6-1-4

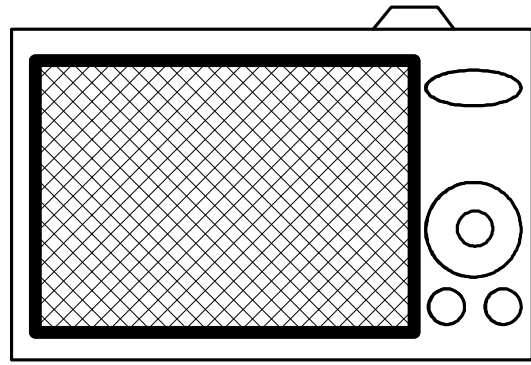


Fig. 6-1-5

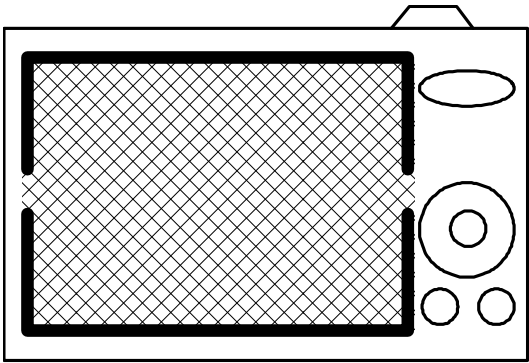


Fig. 6-1-6

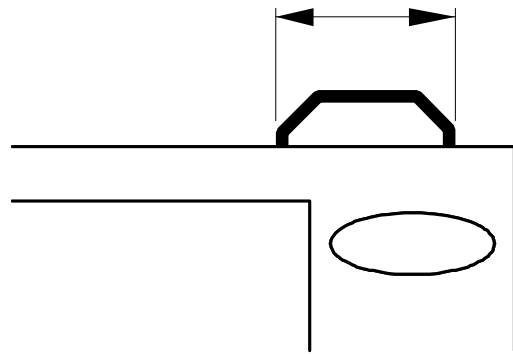


Fig. 6-1-7

6-2 Reference figures for measuring portions of outside dimensions

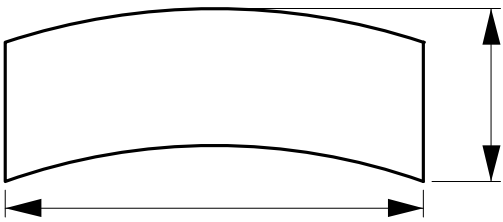


Fig. 6-2-1

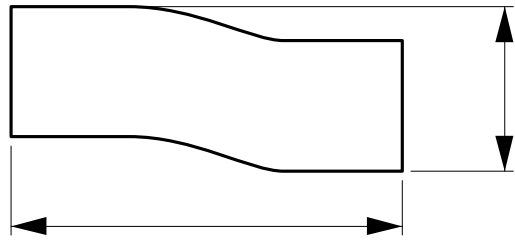


Fig. 6-2-2

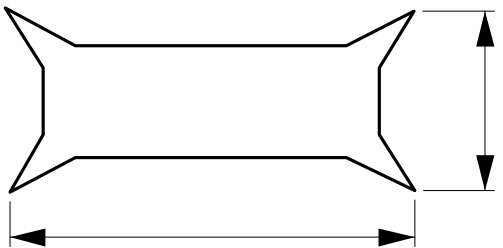


Fig. 6-2-3



Fig. 6-2-4

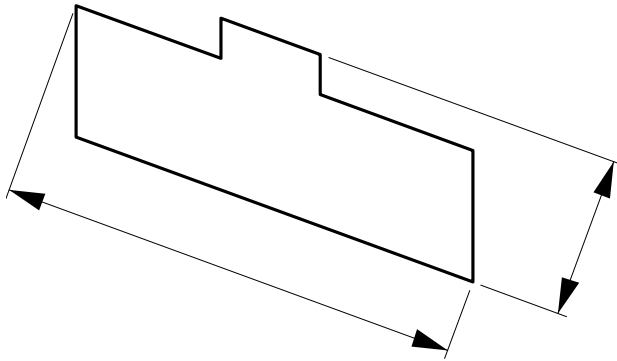


Fig. 6-2-5

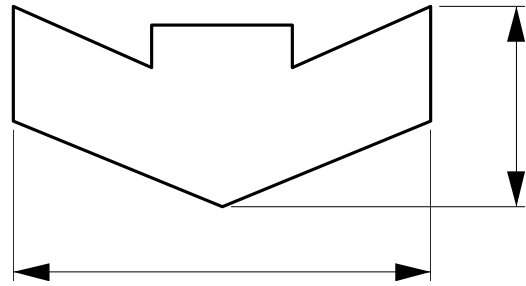


Fig. 6-2-6

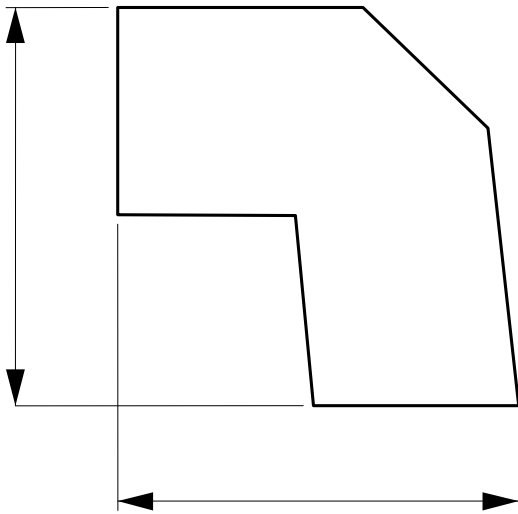


Fig. 6-2-7

6-3 Commentary

6-3-1 Weight

At this moment, the description methods of weight vary according to suppliers because some suppliers include the battery and/or recording medium and others do not. Such being the case, it is naturally quite difficult to compare the weight on the same basis. In the case of video cameras, its weight during shooting is recently regarded as being quite essential, and it is stipulated that such weight shall be mentioned in catalogs or other documents without fail.

For digital cameras also, due to the same reason, it has been decided that the description of the weight shall include the battery and recording medium. A battery used for consumption measurement based on *CIPA DC-002-2003* shall be installed.

Many interchangeable telephoto lenses are heavy, and often have a pedestal to fix a tripod stand and are used with the pedestal installed even though it is detachable. Therefore, it has been decided to stipulate that, if the pedestal is detached and the weight does not include it, such fact shall be mentioned.

In many cases, accessories and photo printers are described with the digital camera in the same catalog. Therefore, it has been decided that it shall not be prohibited to apply this stipulation to whose measurement and description method for weight and dimensions are not individually stipulated. Additionally, as current cell phones incorporate excellent digital camera functions, it shall not be prohibited to apply this stipulation, but will be left to the suppliers' judgment.

For the significant figure in the weight description, some room for choice is left so that it can be selected from the "X" marked items in Table 5-1 to reflect differences in product categories or the

concept of a supplier. However, for example, if a camera with an actual weight of 102g is described in units of 5g, the weight shall be described as 100g according to the rule of rounding to the one place to the nearest 5 or 10 as shown in JCIS 27-1997. On the other hand, when a camera with an actual weight of 101g is described in units of 1g, the weight shall be described as 101g, which means that the order of weight described in the catalog is opposite to the actual one.

To avoid this, instead of rounding off or rounding one place to the nearest 5 or 10 as is used in the description in the units of 5g or 10g, only rounding up shall be applied for all figures. That is to say, a camera with a weight of 102g shall be described as 105g in units of 5g.

6-3-2 Dimensions

JCIS 27-1997 stipulates that small protrusions such as a hanging ring, a hinge, and a finder's eyepiece portion may be excluded when describing the dimensions if the area is 20% or less. Since operational parts of digital cameras are more diverse than that of film cameras and the fact that it is difficult to clearly define small protrusions, it was proposed that the protrusions be included into dimensions. However, after repeated discussions, considering an opinion that the dimensions excluding very small protrusions such as legs and a product logo may close to the actual dimensions, we have come to a conclusion that small protrusions shall be excluded.

The guideline for the limit of an excludable protrusion is the protrusion having an occupied area of 20% as stipulated in JCIS 27-1997. However, when there are multiple protrusions, even if each of them occupies an area of 20% or less, as a total they may occupy a much larger area. Therefore, we have reached a conclusion that protrusions may be excluded when the total area of all protrusions is 20% or less of projection area that includes those protrusions. Furthermore, based on the discussions that it is not appropriate to exclude a protrusion that occupies a small area but has a significant protruding length, a protrusion with a length of 10% or more of vertical dimension of the face shall not be excluded as a protrusion.

In addition, the lens, if not detachable, shall not be excluded as a protrusion even if its area (including protrusions around the lens) is 20% or less because the lens is an essential component of the camera.

As for the dimensions other than the ones mentioned above, although it is not prohibited for suppliers to describe the dimensions of parts unique to each supplier, such descriptions shall be less conspicuous than the ones stipulated in this guideline. When describing such specific figures in catalogs or home pages, sufficient care shall be taken not to confuse users.

Many interchangeable telephoto lenses have a pedestal to fix a tripod stand. It shall not be prohibited to exclude this pedestal from the outside dimension regardless of whether it is detachable type or not, because it is an adapter to fix a tripod stand and has nothing to do with the primary function of the lens.

Additionally, it shall not be prohibited to apply this provision to accessories and photo printers for digital cameras, cell phones etc., in the same way as the weight provisions.

For the significant digits in the weight description, some room for choice is left so that it can be selected from the "X" marked items in Table 5-2 to reflect differences in product categories or the concept of a supplier. However, for example, if a camera with an actual width of 101.4mm is described in units of 1mm, the width shall be described as 101mm according to the rule of rounding off. On the other hand, when a camera with an actual width of 101.2mm is described in units of 0.1mm, the width shall be described as 101.2mm, which means that the order of width is opposite to the actual one.

To avoid this, it has been decided that instead of rounding off, only rounding up shall be applied for all figures. That is to say, a camera with a width of 101.4mm shall be described as 102mm in units of 1mm.

Participating members

The bulk of the deliberations over the formulation of the standards described in this document was performed by the Weight and Dimensions Sub Working Group.

The members of the Working Group are listed below.

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Chair	Canon Inc.	Nobuaki Sakurada
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Vice Chair	Sony Corporation	Eiichi Ichimura
Vice Chair	NIKON CORPORATION	Koichiro Kawamura
Vice Chair	FUJIFILM Corporation	Mikio Watanabe
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