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Digital cameras - Image flare measurement

数码照相机 图像眩光的测量

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is equivalent to ISO 18844:2017 "Measurement of image glare from digital photographic cameras".

The following minimal editorial changes have been made to this document.

---The standard name has been changed to "Measurement of Glare in Digital Camera Images".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Photographic Machinery (SAC/TC107).

Introduction

When a digital camera takes a picture, it can capture not only the light in the scene, but also stray light that reduces image contrast.

Excessive light (glare). Normally, image processing compensates for a normal amount of glare, thus improving image quality. However, variations in glare...

The effect is significant; image processing algorithms are not always successful at removing glare. Improper or excessive glare removal can degrade the quality of the final image.

For example, performing average glare subtraction on the entire image might result in excessive glare reduction in dark areas, leading to thinner shadows.

The loss of glare. Therefore, when evaluating digital cameras, it is necessary to measure the residual glare signal in the processed image. This residual glare...

The light signal is referred to as "image glare".

Image flare in digital cameras is caused not only by the lens, but also by the camera body and image sensor, and is affected by image processing.

Influences. Measurement of image glare includes all influencing factors. optical system, camera body, image sensor, and image processing. ISO 9358 A method for measuring glare from a lens system is specified, but it is not applicable to testing image glare. This document describes a method using digital photography...

A method for testing image glare using image data output from a camera.

Due to the characteristics of image glare, a standard measurement method is needed. Based on all the factors mentioned above, image glare varies in local areas and across different regions.

Images can vary. While image glare can be tested at different locations within different images, the variability of image glare makes...

Comparing these measurements is difficult without contextual information. This document provides a standard method for testing image glare.

This method can be used for cross-comparison.

Measurement of glare in digital camera images

1 Scope

This document defines digital camera image glare and describes the measurement methods for digital camera image glare, in order to facilitate the measurement...

The results were compared.

The measurement methods described in this document are intended to evaluate the performance of a digital camera by using image data output by the digital camera.

This document does not specify target or permissible ranges for image glare.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

IEC 61966-2-1 Multimedia systems and equipment - Color measurement and management - Part 2-1. Color management - Default RGB color space Colourmanagement-DefaultRGB colorspace-sRGB)

3 Terms and Definitions

The following terms and definitions apply to this document.

The URLs for the terminology databases maintained by ISO and IEC for standardization are as follows.

Image glare

In the processed images output by digital cameras, the image sensor detects light that is not from the corresponding subject, resulting in inconsistencies.

Necessary signal enhancement.

Note 1: Image flare is measured for camera systems. A camera system includes the lens used for measurement, the camera body, the image sensor, and other components.

Image processing for measurement. In light detection, the following four scenarios are common.

a) Multiple reflections, scattering, or diffractions within optical elements (including lens surfaces, filter surfaces, or sensors);

- b) Light diffusion at the edges of the lens barrel, camera body, or lens;
- c) Light leakage;
- d) Optical systems measured by point spread functions (including spherical aberration and chromatic aberration).

Once images are captured, distinguishing between these four scenarios can be challenging, but given the system resolution, isolating the last scenario is more efficient. suitable.

Therefore, when testing image glare, it is advisable to minimize the influence of the point spread function. Image glare also includes the effects of image processing. Even when using the same...

The glare value measured from images captured by a camera in raw (RAW) format may vary depending on the image processing algorithms applied.

This is the expected result, because the measurement of image glare covers all influencing factors such as lens, camera body, image sensor, and image processing.

Note 2: "Image glare" has a different definition in ISO 3664:2000, but this definition was removed in ISO 3664:2025.

Note 3: "Image glare" is defined in ISO 12231:2012, but there is no standard source for it. This definition is the same as that in ISO 3664:2000.