

DIAS™-II Distinctness of Image Analysis System



The DIAS™-II is an innovative instrument designed to measure the Distinctness of Image of media and prints. As digital printing has become dominant in the photography market, DOI has been recognized as a critical attribute that influences customers' perception of photo-quality. The DIAS-II measures DOI using an innovative edge-projection technology that quantifies image clarity. Measurement data are collected, analyzed, and reported within seconds. These data are critical in evaluating both media and ink quality for QC and R&D applications.

Overview

DOI is the sharpness and clarity of an image reflected from a print or media surface, as illustrated in the example shown in Figure 1. In this example, the reflection of a window blind and potted plant can be seen on two different inkjet-printed media placed by a windowsill. The reflection captured in Print A is sharp and clear, indicating a high-DOI media surface; the reflection in Print B is blurry and fuzzy, indicating a low-DOI surface. Clarity of reflection such as we see in Print A is associated with the desired "finish" of a photograph, which, in combination with other attributes such as color and gloss, determines the viewer's overall perception of photo-quality.

The DOI of many digital prints is still poor, and many viewers find low-DOI photographs unacceptable. The ability to measure DOI is a key factor in improving photographic quality and ensuring customer acceptance.

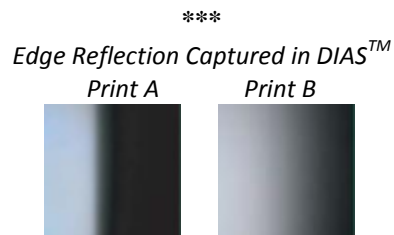
The DIAS-II gives you the data you need. This hand-held instrument is designed to quantify DOI conveniently, objectively, reproducibly, and fast. The DIAS-II simulates human visual experience of DOI by projecting a sharp edge onto the sample-under-test and capturing the reflection with the built-in high-resolution CCD camera. Examples of the reflections captured from high- and low-DOI samples are illustrated in Figure 2 (Print A and Print B, respectively). The DIAS-II image analysis software computes DOI in terms of the sharpness or blurriness of the edge in the reflections.

DOI Measurements

- Blurriness (mm)
- Sharpness (mm^{-1})
- Peak (% per mm)
- Maximum reflectance (%)
- 60% gloss
- SQF



Figure 1. High (Print A) and low (Print B) DOI



DIAS™ Report
Print A: Sharpness = 4.103 mm^{-1}
Blurriness = 0.244 mm
Print B: Sharpness = 0.741 mm^{-1}
Blurriness = 1.349 mm

Figure 2. Reflection of a sharp edge projection on a high (A) and low (B) DOI sample



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System Specifications*

System Configuration

Camera module with DOI optics module
Advanced IASLab® image quality analysis software for DOI
CD with installation software and documentation
Compact carrying case

Camera module

Color CCD

Optics Module

Standard package include one fixed optics module, intended for DOI measurement.

Field of View (FOV)

~3.2mm x 2.4mm

Illumination

White LED

Interface

USB 2.0

PC Requirements

PC with Windows 7 to 10, 64-bit

Power requirements

Supplied by PC via USB; no battery required

Calibrations

Distinctness of Image (DOI) and Gloss (60°)

IASLab® Image Quality Analysis Software

The IASLab software performs the following DOI measurements:

- *Blurriness (mm)*
- *Sharpness (mm⁻¹)*
- *Peak (%/ mm)*
- *Maximum reflectance (%)*
- *60% Gloss*
- *SQF*

**Subject to change without notice. Revised 160223*



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