

ADVANTEST[®]

Photoacoustic Microscope

Hadatomo[™] Z

WEL5200

Noninvasive 3D Imaging of Blood Vessels in the Dermis



Our Hadatomo™ Z photoacoustic microscope can be paired with our Euclid three-dimensional image viewer to provide unprecedented three-dimensional images of the skin. This tool noninvasively images the vascular network, melanin, and structure of the skin, contributing to the analysis of vascular diseases and dermatological research in the fields of beauty and healthcare. It is particularly suited to studying how the skin changes over time.

Hadatomo™ Z Photoacoustic Microscope

Multi-modality Imaging

Ultrasound visualizes skin texture and pores, while two different wavelengths of optical ultrasound selectively visualize melanin and blood vessels.

Acquisition of 3D Image Data through Quasi-real-time Imaging

In addition to real-time display of two-dimensional cross-section images, three-dimensional data images from photoacoustic imaging and ultrasound imaging can be acquired simultaneously in quasi-real-time. Measurement time ranges from a minimum of 40 seconds to a maximum time of 420 seconds, depending on the size of the measurement area.

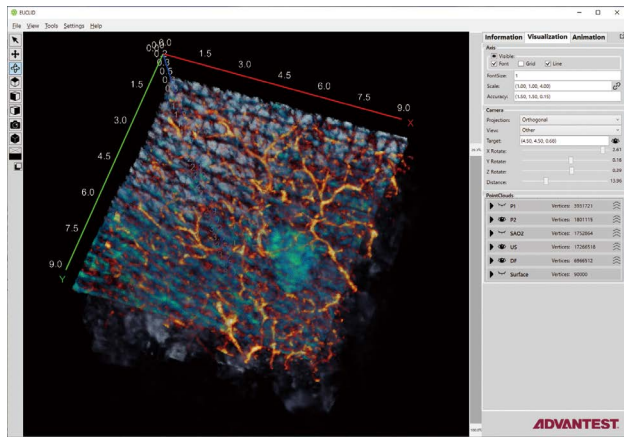
High-resolution Images Obtained Label-free

Applying a small amount of water (acoustic coupling agent) to the measurement area is enough for measurement. A high-resolution ultrasonic sensor developed especially for this system makes focus placement easy with our software.

Two Types of Light Source Available

The 532/556 nm Laser Unit clearly displays blood vessels in the skin and oxygen saturation, while the 575/650 nm Laser Unit displays melanin and blood vessel networks in isolation. A “No Laser Unit” (without photoacoustic imaging capabilities) for 3D ultrasound imaging is also available. Users can select the optimal light source based on the specifications of their measurement application. (Cover photo: Hadatomo™ Z equipped with 575/650 nm Laser Unit)

Euclid 3D Image Viewer



3D Image Display

Easy to operate, provides a 3D display of measurement data acquired by the Hadatomo™ series.

Superimpose 2+ Types of Image Data

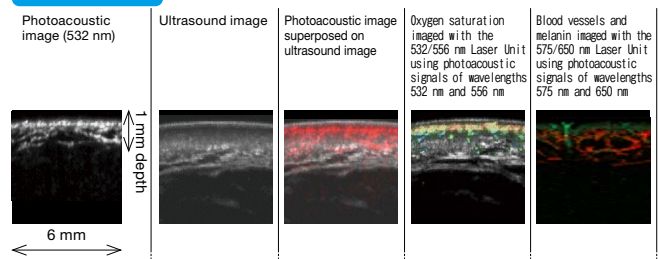
Users can freely combine acquired data related to the vascular network, melanin, and skin structure, and create three-dimensional images and cross-section images.

Diverse Image Display Options

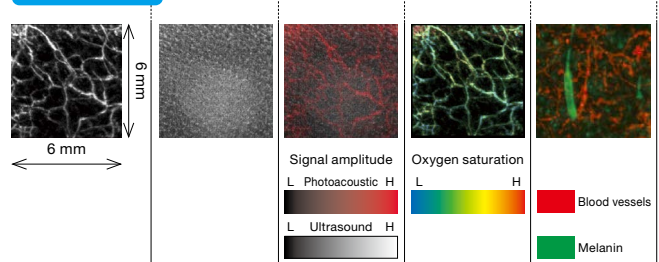
Supports image extraction in the horizontal direction and tomographic direction from the region of interest and displays images with appropriate colors and color maps.

WEL5200 Imaging Examples (Sample: forearm)

2D tomography



3D image



Specifications

| | | |
|-------------------------------|--|--|
| Measurement | 2D (Tomography), 3D | |
| Sampling frequency | 500 MHz | |
| Measurement area (x, y) | (1) 6 x 6 mm | (2) 9 x 9 mm (3) 6 x 3 mm |
| Measurement depth (z) | 3 mm (designated signal acquisition range) | |
| Scanning step | 15 μm / 30 μm | |
| Measurement time (15 μm) | (1) 210 s (2) 420 s (3) 110 s | |
| Measurement time (30 μm) | (1) 70 s (2) 140 s (3) 40 s | |
| Light Source* | (A) 532/556 nm Laser Unit | (B) 575/650 nm Laser Unit |
| Wavelength | 532 nm, 556 nm | 575 nm, 650 nm |
| Horizontal image display | 15 μm | |
| Axial image display | 12 μm (depending on ultrasound velocity) | |
| Pulse energy (averaged value) | Below 16 μJ/pulse | Below 18 μJ/pulse (575 nm) Below 14 μJ/pulse (650 nm) |
| Pulse width | < 10 ns | |
| Repetition rate | 1000 Hz (per 1 wavelength) | |
| Dimensions | Approx. 610 (W) x 730 (D) x 1,400 (H) | |
| Weight | < 135 kg | |

* (A) or (B) laser unit can be selected as the light source.

- This product is a laser instrument with class 3B lasers.
- This product is a scientific instrument. It is not designed to be used as a medical instrument.
- This product does not include a PC or USB 3.0 cable.
 - Recommended PC Operating Environment : Microsoft Windows 10 64bit
(CPU: Intel® Core™ i7-3770K or higher/ RAM: 16GB or more / Available HDD/SSD space: 1.5GB or more / USB-IF USB3.0 1 port)
 - USB 3.0 cable required : less than 2.5 m, USB 3.0 Type-B (system side)
- Recommended PC Operating Environment for Euclid : Microsoft Windows 10 Pro 64bit
(CPU: Intel® Core™ i7-10870H (2.20GHz) or higher / RAM: 16GB or more / Available HDD/SSD space: 1GB or more / Display resolution: 1920x1080 or higher / GPU GeForce RTX™ 3060 6GB GDDR6 or higher)
- The specifications and images in this catalog are subject to change without prior notice.

ADVANTEST®

<https://www.advantest.com>

ADVANTEST CORPORATION

Shin-Marunouchi Center Building, 1-6-2 Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan Phone: +81-3-3214-7500

New Area Business Development Initiative E-mail: info_Hadatomo@advantest.com