AMTAST AMT599

AMTAST AMT599 Colorimeter Instruction Manual

DIGITAL PRECISE COLOR ANALYZER

1. Introduction

The AMTAST AMT599 Colorimeter is a precise digital instrument designed for accurate color difference measurement. It is widely used in various industries for quality control and analysis of color in coatings, printing, and other materials. This manual provides essential information for the proper setup, operation, maintenance, and troubleshooting of your AMT599 Colorimeter.
The device features a high-accuracy sensor and stable signal processing, ensuring reliable measurement results. It supports multiple color space displays and offers quick measurement times.

2. Setup

2.1 Unpacking

Carefully remove the AMT599 Colorimeter and all accessories from its packaging. Verify that all components are present and undamaged.

2.2 Power Supply and Battery Installation

The AMT599 Colorimeter can be powered by four AA 1.5V alkaline batteries, nickel-metal hydride (Ni-MH) rechargeable batteries, or a DC5V adapter.

1. Locate the battery compartment on the device.
2. Insert four AA 1.5V batteries, ensuring correct polarity (+/-).
3. Alternatively, connect the DC5V adapter to the power input port on the device and to a suitable power outlet.

2.3 Initial Power On

Press and hold the power button until the display illuminates. The device will perform a self-check before entering the measurement interface.

2.4 Calibration

Before first use and periodically thereafter, calibrate the device using the provided white calibration board to ensure measurement accuracy.

1. Ensure the device is powered on and in measurement mode.
2. Place the measurement port firmly against the white calibration board.
3. Follow the on-screen prompts to initiate and complete the calibration process.

3. Operating Instructions

3.1 Basic Measurement

To perform a color measurement:

1. Ensure the device is calibrated.
2. Place the measurement port (8mm diameter) firmly and flat against the surface of the sample to be measured.
3. Press the measurement button. The measurement will typically complete in about 0.5 seconds.
4. The measurement results will be displayed on the screen.

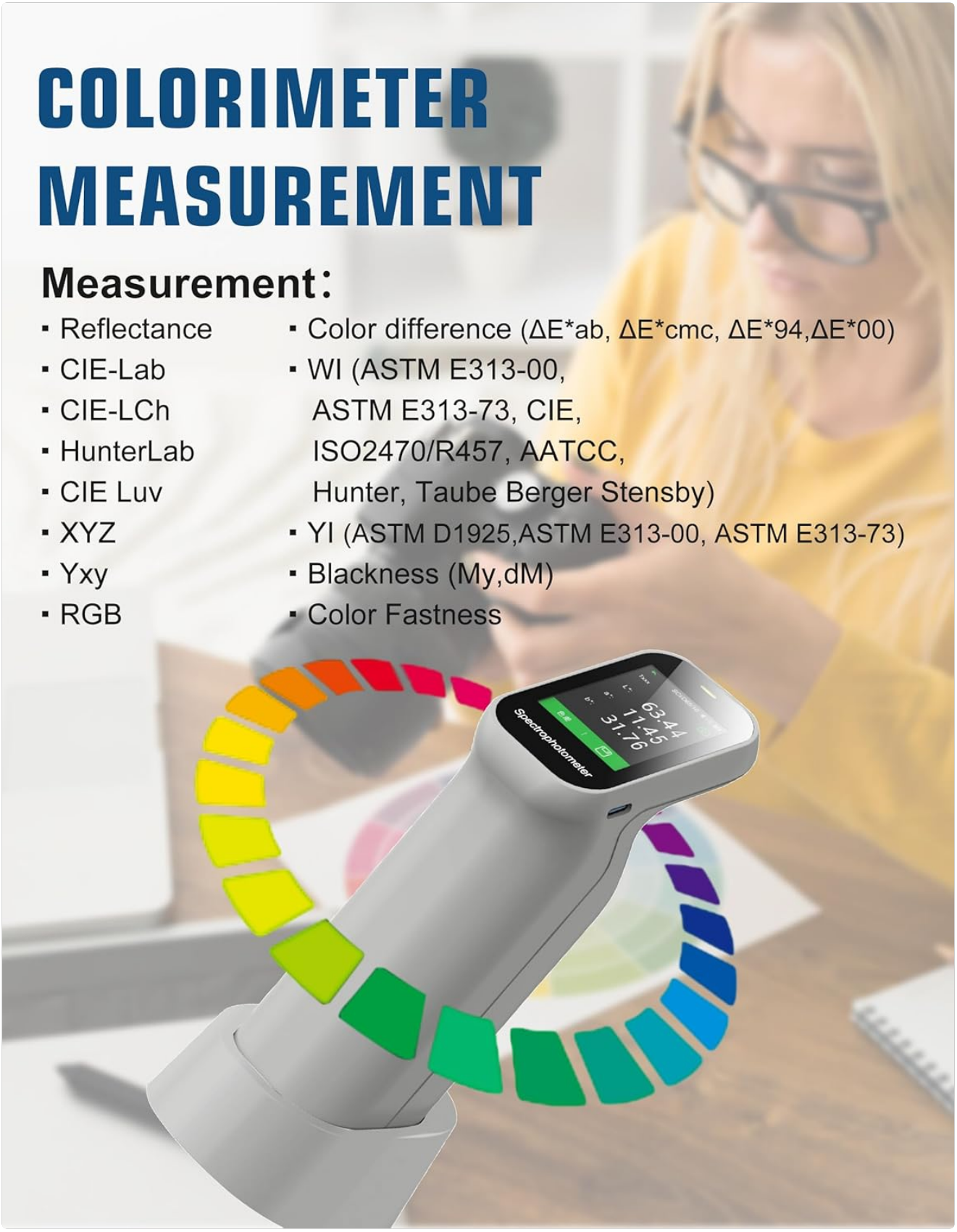

Figure 1: The AMTAST AMT599 Colorimeter displaying various color measurement parameters such as Reflectance, CIE-Lab, CIE-LCh, HunterLab, CIE Luv, XYZ, Yxy, RGB, Color difference (ΔE*ab, ΔE*cmc, ΔE*94, ΔE*00), WI (ASTM E313-00, ASTM E313-73, CIE, ISO2470/R457, AATCC), Hunter, Taube Berger Stensby, YI (ASTM D1925, ASTM E313-00, ASTM E313-73), Blackness (My,dM), and Color Fastness.

3.2 Measurement Modes

The device supports multiple color space display values including L*a*b, L*c*h, and Yxy. Navigate through the menu to select the desired measurement mode for your application.

3.3 Data Storage and Management

The AMT599 Colorimeter can store up to 10 sets of standard samples, with up to 100 measurements under each standard sample. Use the device's menu to save, recall, and manage your measurement data.
For advanced data management, the device can be connected to a computer via its USB2.0 port. Free management software is available to help control and convert color data.

3.4 Language Settings

The device supports multiple languages, including Chinese and English. Access the system settings to change the display language as needed.

4. Key Features

- **Dual Optical Path Design:** Improves repeatability accuracy with a ΔE*ab ≤ 0.03.
- **Innovative Optics:** Features 5-micron thick nano-integrated optics.
- **Evaluation Light Sources:** Capable of evaluating color under nearly 40 different light sources.
- **SCI Measurement Mode:** Contains SCI measurement mode for precise readings.
- **UV Fluorescent Color Measurement:** Includes UV for fluorescent color measurement.
- **Robust Calibration:** Calibration base and zirconium reference with a Mohs hardness of 9 ensure long-term stability.
- **Built-in HD Camera:** Provides clear observation of the measured area.

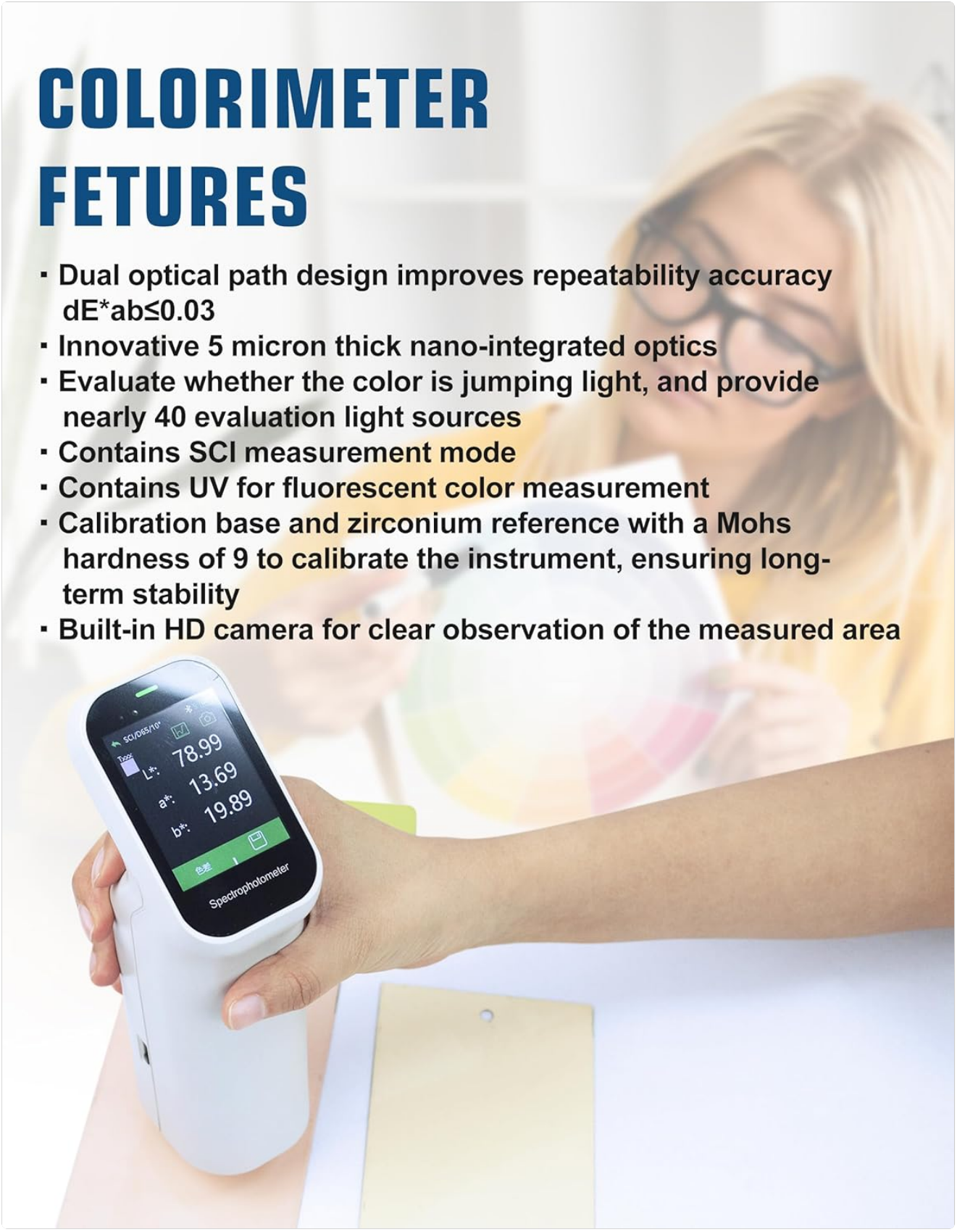

Figure 2: The AMTAST AMT599 Colorimeter in use, demonstrating its display and highlighting key features such as dual optical path design and innovative optics.

5. Maintenance

5.1 Cleaning

To maintain optimal performance and accuracy:

- Gently wipe the exterior of the device with a soft, dry cloth.

- Keep the measurement port clean and free of dust or debris. Use a soft brush or lens cloth if necessary.
- Do not use abrasive cleaners or solvents, as these can damage the device.

5.2 Storage

When not in use, store the AMT599 Colorimeter in a clean, dry environment, away from direct sunlight, extreme temperatures, and high humidity. Remove batteries if the device will not be used for an extended period to prevent leakage.

Figure 3: The AMTAST AMT599 Colorimeter, emphasizing its durability with a life of 10 years and 1 million cycles, and a storage capacity of 10,000 data points.

6. Troubleshooting

Problem	Possible Cause	Solution
Device does not power on	Low or dead batteries; Power adapter not connected properly	Replace batteries or ensure power adapter is securely connected.
Inaccurate readings	Device not calibrated; Measurement port dirty; Sample surface uneven	Perform calibration; Clean measurement port; Ensure sample surface is flat and clean.
Display issues (e.g., blank screen, flickering)	Software glitch; Battery issue	Restart the device; Check battery level or try using the DC adapter.
Cannot connect to PC	USB cable faulty; Driver not installed; Software not running	Try a different USB cable; Install necessary drivers; Ensure data management software is open.

7. Specifications

Figure 4: The AMTAST AMT599 Colorimeter displaying its technical specifications on the screen.

- **Model:** AMT599
- **Illumination System:** 8/d (8°/diffused illumination) SCI
- **Testing Port Diameter:** Approximately 8mm
- **Measuring Conditions:** CIE 10° standard observer; CIE D65 light source
- **Measuring Range:** L*: 1-100
- **Repeatability:** Standard deviation within ΔE*ab*, below 0.1 (testing condition: measure the white calibration

board for average)

- **Storage:** 10 sets of standard samples; up to 100 under each standard sample
- **Measuring Time:** Approximately 0.5 seconds
- **Measuring Light Source:** LED
- **Languages:** Chinese, English
- **Power:** Four AA 1.5V Alkaline battery or nickel-metal hydride battery; or DC5V adapter
- **Port:** USB2.0 (for printer/PC connection)
- **Item Weight:** Approximately 2.09 pounds (0.95 kg)
- **Neck Diameter:** 8MM
- **Display Accuracy:** 0.01
- **Measuring Aperture:** Φ8mm (also mentioned Φ11mm, Φ6mm, ▽11mm, ▽6mm in image, but 8mm is consistent with description)
- **Source Condition:** A, B, C, D50, D55, D65, D75, F1-F12, CWF, U30, U35, DLF, NBF, TL83, TL84, ID50, ID65, LED-B1, LED-B2, LED-B3, LED-B4, LED-B5, LED-BH1, LED-RGB1, LED-V1, LED-V2
- **Observer:** 2°, 10°
- **Integrating Sphere Diameter:** 40mm
- **Standards:** CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724-1, ASTM E1164, DIN5033 Teil7
- **Wavelength Interval:** 10nm
- **Wavelength Range:** 400–700nm
- **Reflectance Determination Range:** 0–200%
- **Reflectance Resolution:** 0.01%
- **Measurement Method:** Single measurement, average measurement (2 to 99 measurements)
- **Life of Light Source:** 10 years / 1 million cycles
- **Data Storage Capacity:** 10,000 data points

8. Warranty

AMTAST products are manufactured to high-quality standards. This product is covered by a limited warranty against defects in materials and workmanship. Please refer to the warranty card included with your product or visit the official AMTAST website for detailed warranty terms and conditions.

9. Customer Support

For technical assistance, troubleshooting, or service inquiries, please contact AMTAST customer support:

- **Email:** support@amtast.com
- **Website:** www.amtast.com/support

Please have your model number (AMT599) and purchase information ready when contacting support.