iColor-T407 Spectrophotometer

Video

Contact us

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Features and Applications

The iColor-T407 spectrophotometer is a portable color detection instrument developed based on its own spectral division core technology. It adopts D/8° geometric optical illumination conditions, enabling precise measurement of object color data and color difference, while balancing measurement speed and operational convenience. The instrument supports connection to PC software or independent use. It is highly functional, equipped with multiple measurement diameters, and meets the precise color difference control requirements in various industries such as plastic electronics, paint and ink, textile and garment printing and dyeing, etc., and complies with multiple international and national standards such as CIE No.15 and GB/T 3978.

Product Features

- Using planar grating spectrometry and silicon photodiode array sensors, the optical resolution is less than 10nm, and the measurement is precise and stable.
- Supports multi-caliber switching of 8mm, 4mm, and 1×3mm (for some models). The platform and tip diameter can be selected, and it is compatible with samples of different sizes.
- 3.5-inch TFT true-color capacitive touch screen, with intuitive operation and support for multiple languages including simplified Chinese and English.
- It is equipped with a 5000mAh lithium battery, which enables 8500 measurements within 8 hours. The battery life is very strong and it is equipped with a universal TYPE-C charging port.
- It can store 500 standard samples and 20,000 test data samples. It supports both USB and Bluetooth communication modes, making data management very convenient.
- It features dual measurement modes of SCI/SCE, supports a standard observer angle of 2°/10°, and offers 41 selectable observation light sources, suitable for various measurement scenarios.
- The design is ergonomic, equipped with a wristband fixing column to prevent accidental falling, and the outer protective design can reduce accidental bumps and injuries.
- Supports camera framing positioning and stable film positioning. The measurement is precise. It is easy for beginners to operate.

Features and Applications

Product Applications

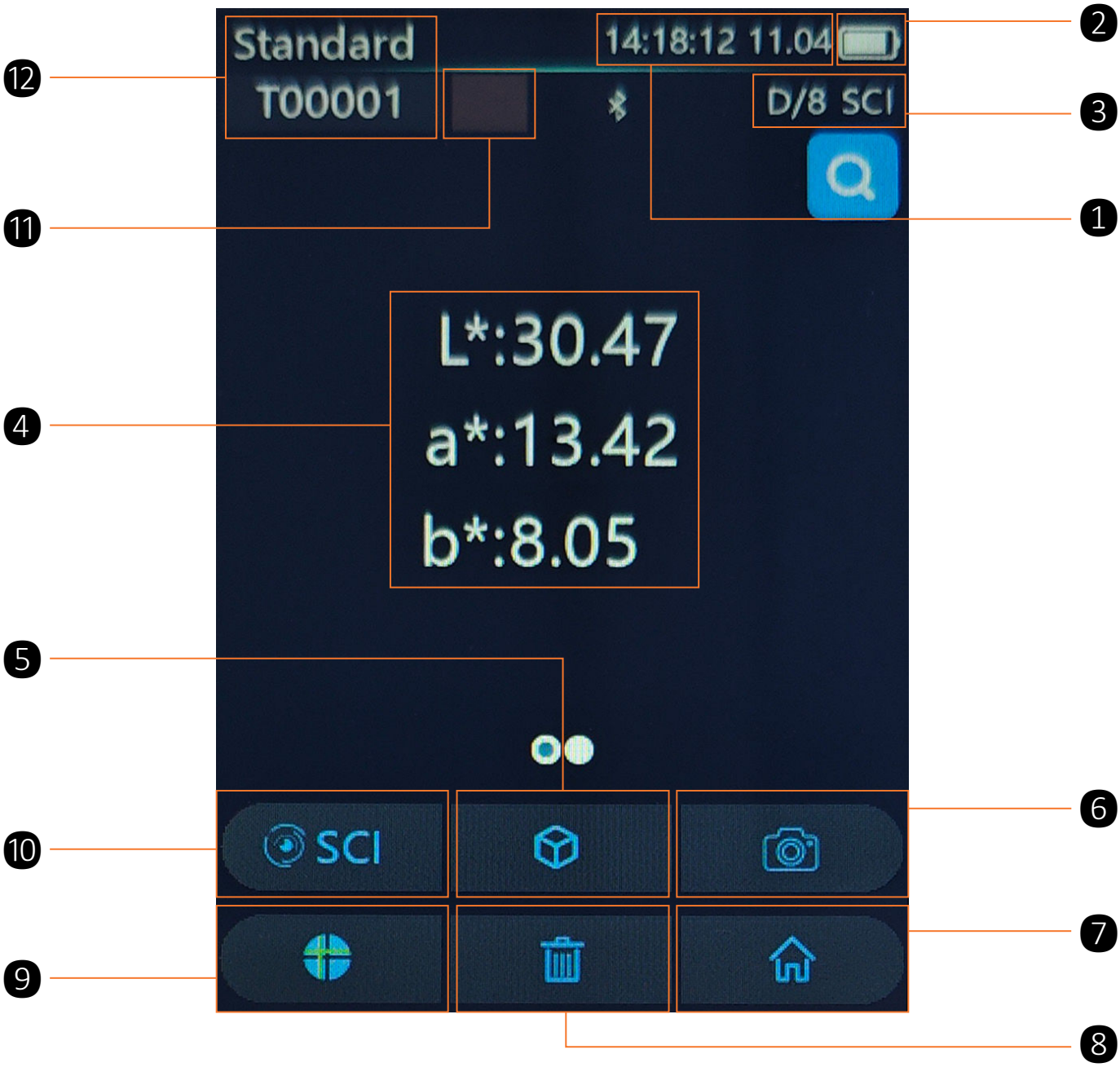
- Suitable for color detection in multiple industries such as plastic electronics, paint and ink, textile and clothing printing, printing, ceramics, etc.
- Meet the requirements for rapid on-site testing and precise laboratory analysis in production sites, and can be used for raw material acceptance, production process control, and finished product quality inspection.
- Supports comparison measurement between standard samples and test samples, enabling quick determination of whether the product color is qualified or not, and facilitating quality control.
- It can be connected to USB or Bluetooth printers to enable real-time printing of measurement data, facilitating on-site recording and reporting.
- It can be used for both fluorescence samples and ordinary samples for measurement. By switching the UV light source, it can meet the detection requirements for different materials.

Product Structure

1.Display Screen **2.Indicator Light** **3.Type-C Interface**
4.M5 Fixed Thread Hole **5.Measurement Key** **6.Caliber Switching Switch**
7.Wristband Fixation Column **8.Measurement Caliber**

Product Details

Display Interface



1.Time	2.Battery level	3.Test mode	4.Color value
5.Tolerance setting	6.Scene selection and positioning		7.Main Menu
8.Delete key	9.Switching sample measurement		10.Display mode
11.Simulation color	12.Standard sample name		

Product Details

Details of the Instrument's Advantages

- The interface is clearly marked. The TYPE-C interface has the functions of charging, communication and printing, and is easy to use.
- Equipped with an independent power switch and a caliber switching switch to prevent accidental operation, and the switching logic is clear.
- The standard whiteboard is dirt-resistant and stable. The correction box design makes cleaning and storage easy, ensuring the accuracy of the measurement benchmark.
- Supports average measurement function (2 to 99 times), allowing for the acquisition of multi-point average data, which is more in line with the true coloration of uneven samples.
- The system settings are comprehensive, supporting features such as automatic saving of measurements and adjustment of screen backlight duration, and are suitable for different usage habits.

Operation Interface

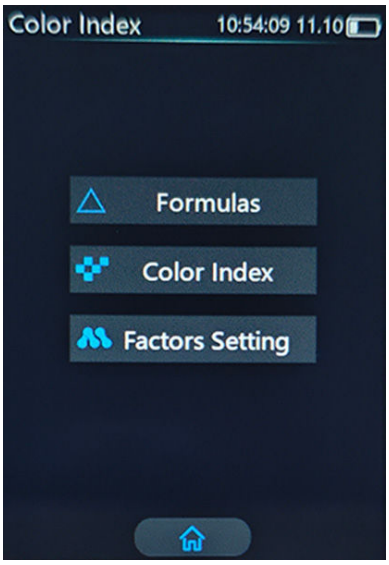
Correction Function

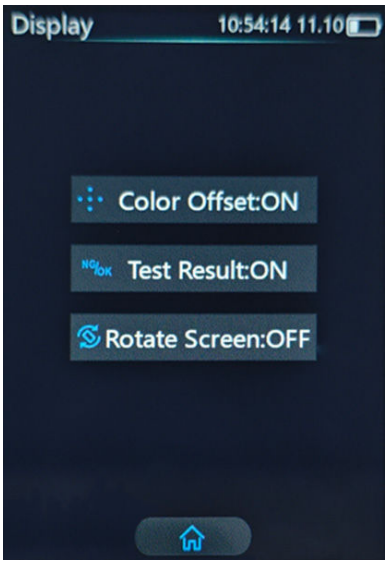
The black-and-white calibration operation of the iColor-T407 spectrophotometer is simple and it is a crucial step for ensuring measurement accuracy.

- Enter the main menu "Black and White Correction" interface and check the validity period and remaining time for the correction.
- Reflective black calibration: In a dim and unobstructed environment, press the measurement button on the blank surface to complete the black calibration.
- Reflective White Calibration: Place the standard white board properly, ensure that the number and size match, and then press the measurement button to complete the white calibration.
- After correction is completed, it will automatically return to the correction interface. If there is any error in the correction, a reminder box will pop up.

Operation Interface

Parameter Settings

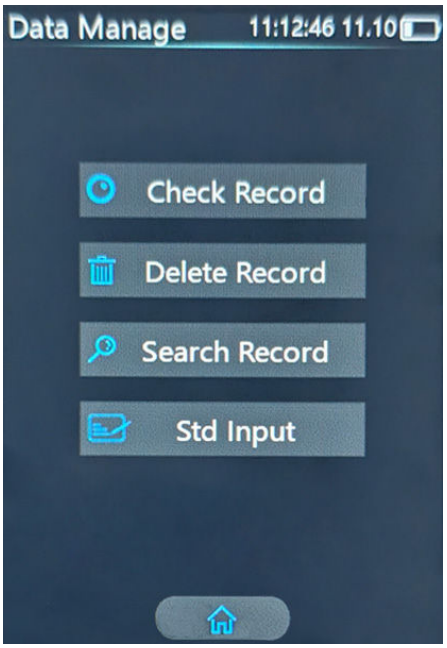


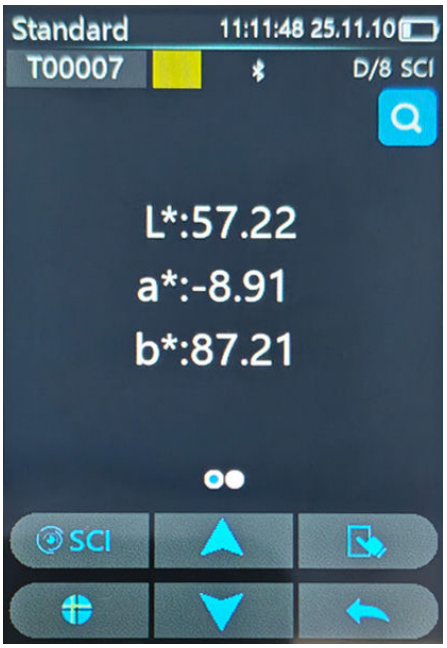


- Measurement mode: You can choose between SCI (including mirror reflection), SCE (excluding mirror reflection), or SCI + SCE modes.
- Measurement aperture: Choose from 8mm, 4mm or 1×3mm based on the sample size.
- This needs to be coordinated with hardware switching and software settings.
- Bluetooth settings: Supports enabling / disabling the Bluetooth module, and allows selection of either printing or data transmission operation mode.
- Buzzer: Controls the switch for the alert sound during measurement. Once activated, the buzzer will sound at the beginning and end of the measurement.
- Screen backlight duration: Available in options such as always on, 1 minute, 5 minutes, etc. The screen will automatically soft-shut down after 3 minutes when it is turned off.

Operation Interface

Data Storage And Printing

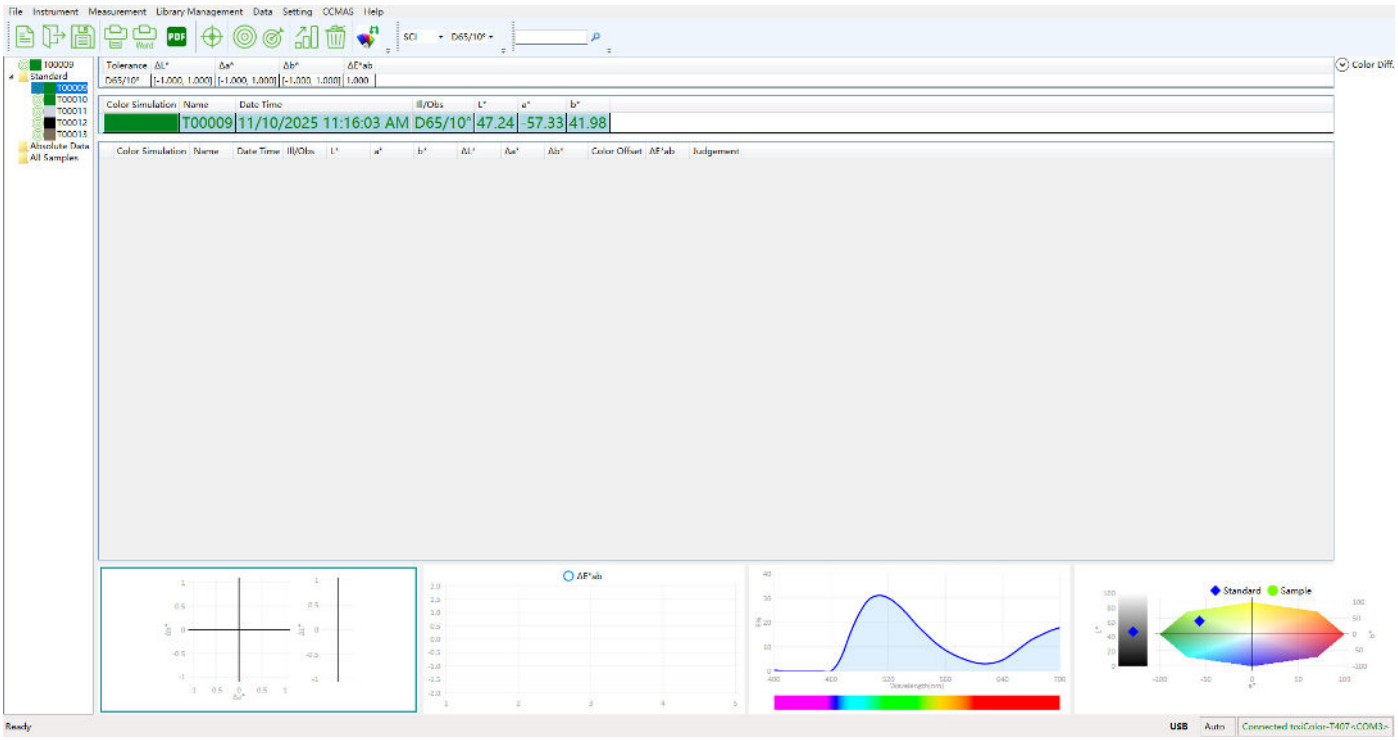




- The instrument is equipped with a large-capacity internal storage, which can store 500 standard samples and 20,000 test data of samples. It also supports the expansion of massive storage through APP/PC.
- The data management function is highly comprehensive, allowing for viewing, deleting, and searching of records. It also supports editing and locking of sample names to prevent accidental operations.
- Supports connection to USB or Bluetooth printers (optional accessory), enabling real-time printing of measurement data or printing of historical records.
- The automatic data-saving function is enabled. Data can be stored without any manual operation. When it is not enabled, you need to manually click the "Save" button.

Operation Interface

Software Application



- The software interface supports multiple language switching such as simplified Chinese and English. The operation process is visualized. It is equipped with shortcut keys, tool tips and other navigation assistance functions, making it easy for beginners to get started without the need for professional training.
- Supports automated measurement settings, can associate with the automatic measurement mode of the instrument, automatically collect data at the preset intervals and upload it to the software without the need for manual intervention, suitable for online detection scenarios in production lines.
- The custom report generation function allows for the addition of elements such as the enterprise logo, testing standards, sample information, etc., to generate standardized PDF testing reports. These reports can be either electronically archived or directly printed, meeting the needs of customers for reporting and internal quality control archiving.
- Compatible with all series of Windows operating systems. The installation process is simple. It supports both USB and Bluetooth communication modes, ensuring stable connection with a data transmission delay of less than 0.5 seconds, guaranteeing real-time measurement and analysis efficiency.

Operation Interface

Software Application

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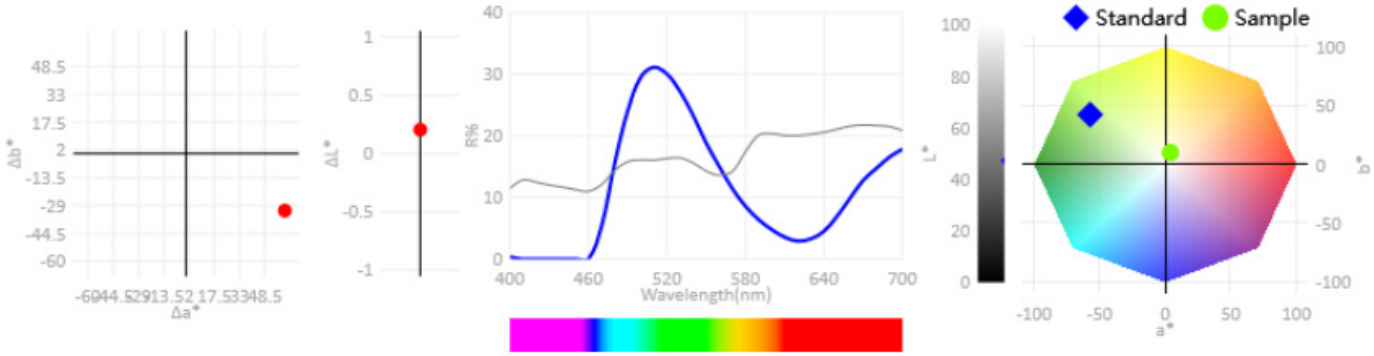
Color Difference Cumulative Report



Tolerance				
	ΔL*	Δa*	Δb*	ΔE*ab
D65/10°	[-1.000, 1.000]	[-1.000, 1.000]	[-1.000, 1.000]	1.000

Standard			
Name	L*	a*	b*
T00009(D65/10°)	47.24	-57.33	41.98

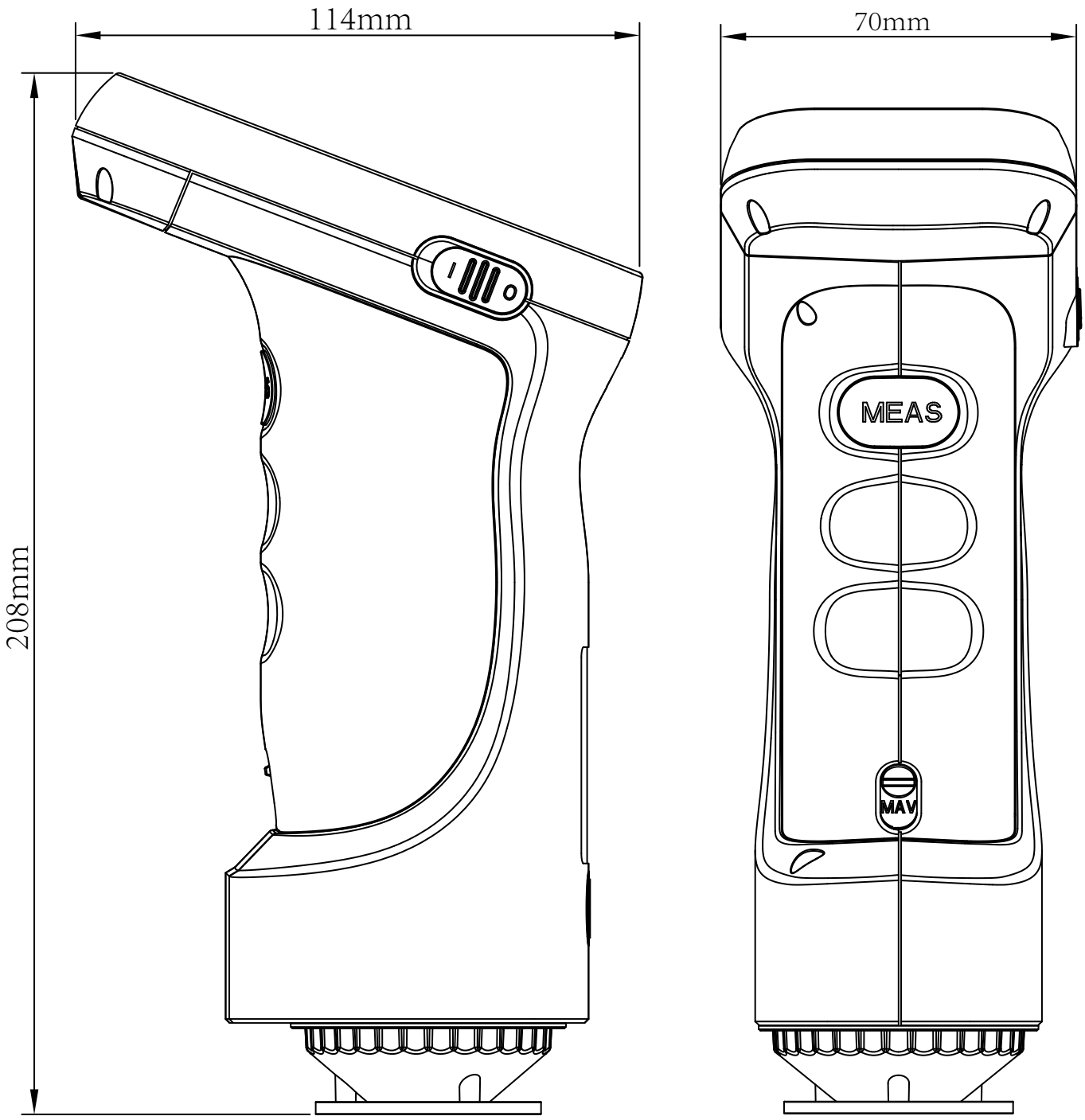
Statistics Result					
	Min.	Max.	Range	Average	Std.Dev.
L*	47.440	47.440	0.000	47.440	0.000
a*	3.230	3.230	0.000	3.230	0.000
b*	10.209	10.209	0.000	10.209	0.000
Judgement	"Total 1, Pass 0, Percent of Pass is 0%"				

Color Differences							
Index	Name	ΔL*	Δa*	Δb*	ΔE*ab	Color Offset	Judgement
1	Sample1	0.20	60.56	-31.78	68.39	Red+, Yellow-	Fail

Test:_____ Audit:_____

Instrument Model: iColor-T407

Instrument Dimension



Technical Specification

Model	iColor-T407 Plus	iColor-T407
Optical Geometry	D/8 (diffused illumination,8-degree viewing angle) SCI & SCE; Include UV & Exclude UV.	
Conform to Standards	CIENO.15,GB/T3978.GB2893,G-B/T18833,1S07724-1,ASTME1164,DIN5033 Teil7	
Light Source	Combined Full Spectrum LED Lamp, UV Lamp	
Integrating Sphere Size	Φ40mm	
Spectroscopic Method	Plane Grating	
Sensor	Large-area silicon photodiode array (40 pairs of dual columns)	
Wavelength Range	360~780nm	400~700nm
Wavelength Interval	10nm	
Reflectance Range	0~200%	
Measuring Apertures	Five Apertures: 8mm Platform+ 8mm Tip+ 4mm Platform +4mm Tip+1*3mm	Three Apertures:8mm Platform +4mm Platform+1*3mm
Locating Method	Cross Locating+Camera Locating	
Whiteboard Calibration	Non-contact automatic whiteboard Calibration	
Color Spaces	CIE LAB, XYZ, Yxy, LCh, CIE LUV, s-RGB, HunterLab, Bxy, DIN Lab99 Munsell(C/2)	
Color Difference Formula	ΔE*ab, ΔE*uV, E*94, ΔE*cmc(2:1), ΔE*cmc(1:1), ΔE*00, DINAE99, ΔE(Hunter)	
Other Colorimetric Index	Spectrum Reflectance Rate, WI(ASTM E313-00, ASTM E313-73,CIE/ISO, AATCC, Hunter, TaubeBergerStensby), YI(ASTM D1925, ASTM E313-00, ASTM E313-73), Metamerism Index Mt, Staining Fastness, Color Fastness, Strength (dye strength, tinting strength), Opacity 8-degree Gloss, 555 index, Blackness (My, dM), Color density CMYK(A.T.E.M), Tint(ASTM E313-00, Munsell (Some functions are realized through the computer)	

Mikrosize®

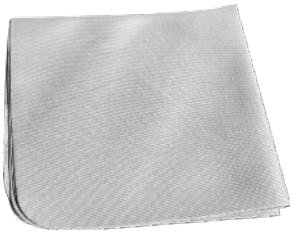
Technical Specification

Observer Angle	2°/10°	
Illuminants	D65, A, C, D50, D55, D75, F1, F2(CWF), F3, F4, F5, F6, F7(DLF), F8, F9, F10(TPL5), F11(TL84), F12(TL83/U30), B, U35, NBF, ID50, ID65, LED-B1, LED-B2, LED-B3, LED-B4, LED-B5, LED-BH1, LED-RGB1, LED-V1, LED-V2, LED-C2, LED-C3, LED-C5, Light source can be customized(a total of 41 kinds of light sources, some of which are realized through the host computer/APP)	
Displayed Data	Spectrogram/values, Samples chromaticity Values, Color Diference Values/Graph, PASS/FAIL Result, Color Simulation, Color Offset	
Measuring Time	About 1.5s	
Repeatability	Chromaticity Value: MAV/SCI, within ΔE*ab 0.02 Spectral reflectance: MAV/SCI, standard deviation within 0.07% (400~700nm)	Chromaticity Value: MAV/SCI, within ΔE*ab 0.022 Spectral reflectance: MAV/SCI, standard deviation within 0.07% (400~700nm)
Inter-instrument Error	MAV/SCI, ΔE*ab within 0.18	MAV/SCI, ΔE*ab within 0.2
Display Accuracy	0.01	
Measurement Mode	Single measurement,average measurement (2-99 times)	
Data Storage	APP mass storage	
Accuracy Guarantee	Guarantee passing the Grade 1 metrology	
Dimension	Length X Width X Height=114 X 70 X 208mm	
Weight	About 435g(Calibration Base not included)	
Battery	Lithium battery, 3.7V,5000mAh,8500 times measurements within 8 hours	
Illuminant Life Span	More than 1.5million measurements in 10 years	
Display	TFT True Color 3.5inch, Capacitive Touch Screen	
Data Port	USB, Bluetooth®	
Data Storage	500 pcs standard samples, 20000 pcs samples (one piece of data can include SCI+SCE at the same time), APP/PC mass storage	
Software support	Andriod, IOS, Windows, Wechat APPlet, Harmony OS.	
Language	Simplified Chinese,Traditional Chinese, English	

Standard Delivery

Name	Qty	Photo
Host Machine	1 pc	
Calibration Box	1 pc	
Type-C Data Cable	1 pc	
Power Adapter	1 pc	
Measurement Caliber Kit	1 pc	
Wristband	1 pc	

Standard Delivery

Name	Qty	Photo
Protective Cover	1 pc	
Cleaning Cloth	1 pc	
Operation Manual	1 pc	
Certificate	1 pc	
Warranty Card	1 pc	
Instrument Box	1 pc