



Bench-top Spectrophotometer

CS-821N

■ Hangzhou CHNSpec Technology Co., Ltd www.chnspec.com



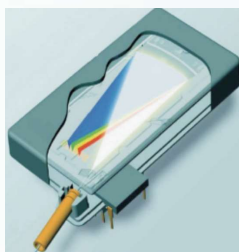
1. Instrument Introduction

Color Spectrophotometer CS-820N Technology

①. Advanced patented technology

1. SCS optical engine--Dual optical paths spectrum analysis technology

(Patent Number: ZL201210337619.2)

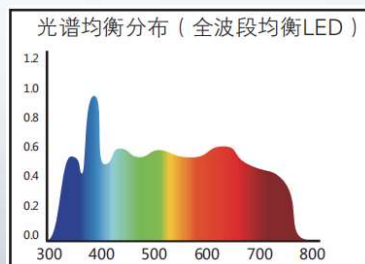


The research results were published in the domestic optical academic journal <Photonics Journal>

2. Camera to view measurement area
(Patent Number: ZL20130519382X)



3. Double light sources (Pulse xenon lamp and LED) (Full balanced LED Patent No: ZL20130519382X)



The research results were published in the domestic SCI optical journal <Chinese Optics letters>

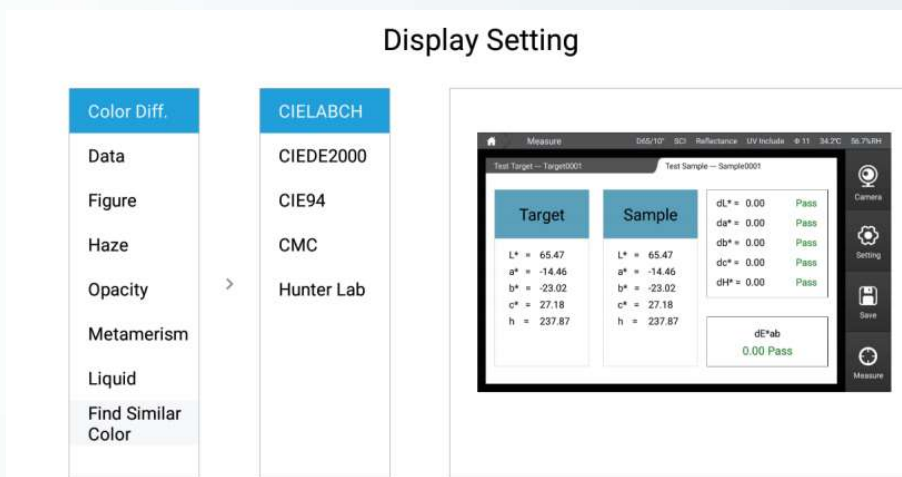
4. Automatic light compensation
(Patent No: ZL201310511357.1)



The research results were published in foreign SCI journals for English optical journal <OPTIK>

Advanced Color Measuring Instrument

②. Comprehensive Measurement Parameters



Measurement parameter

Color Spaces:

L*a*b, L*C*h, Hunter Lab, Yxy, XYZ

Index:

WI(ASTM E313-00,ASTM E313-73,

CIE/ISO,AATCC,Hunter,Taube,Berger Stensby), YI(ASTM

D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313-

00,CIE,Ganz),Metamerism,index milm,stain fastness,color

fastness,ISO brightness,R457,A density , T density,E density,M

density,APHA/Pt-Co/Hazen,Gardner,Saybolt,ASTM

color,Haze,Total Transittance,Opacity,Color Strength

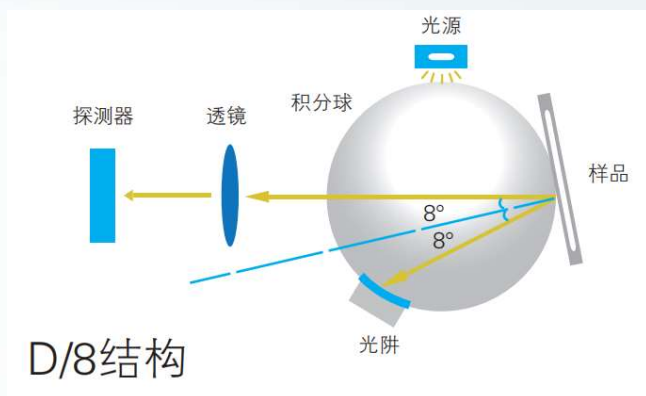
Color Difference:

ΔE^*ab , ΔE^*CH , ΔE^*uv , ΔE^*cmc , ΔE^*94 , ΔE^*00 , ΔEab (Hunter),555

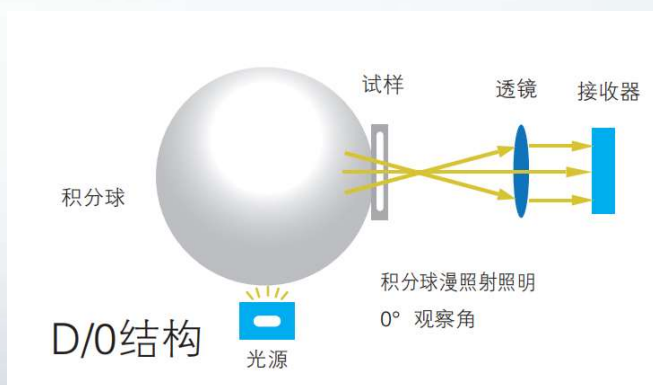
shade sort

Advanced Color Measuring Instrument

③.Support Reflectance and Transmittance Measurement



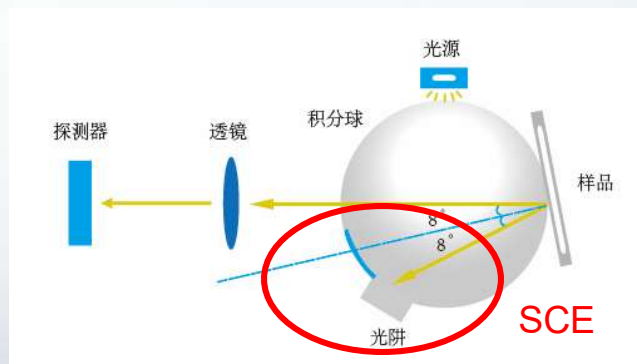
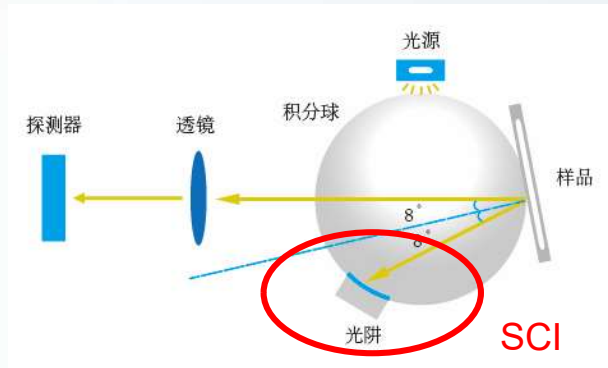
Reflectance adopts D/8 geometry (integrating sphere diffused illumination, 8° observer angle)



Transmittance adopts D/0 geometry (integrating sphere diffused illumination, 0° observer angle) to measure the parameters of liquid APHA, Pt-Co (platinum cobalt index), Gardner (Gardner index).

Advanced Color Measuring Instrument

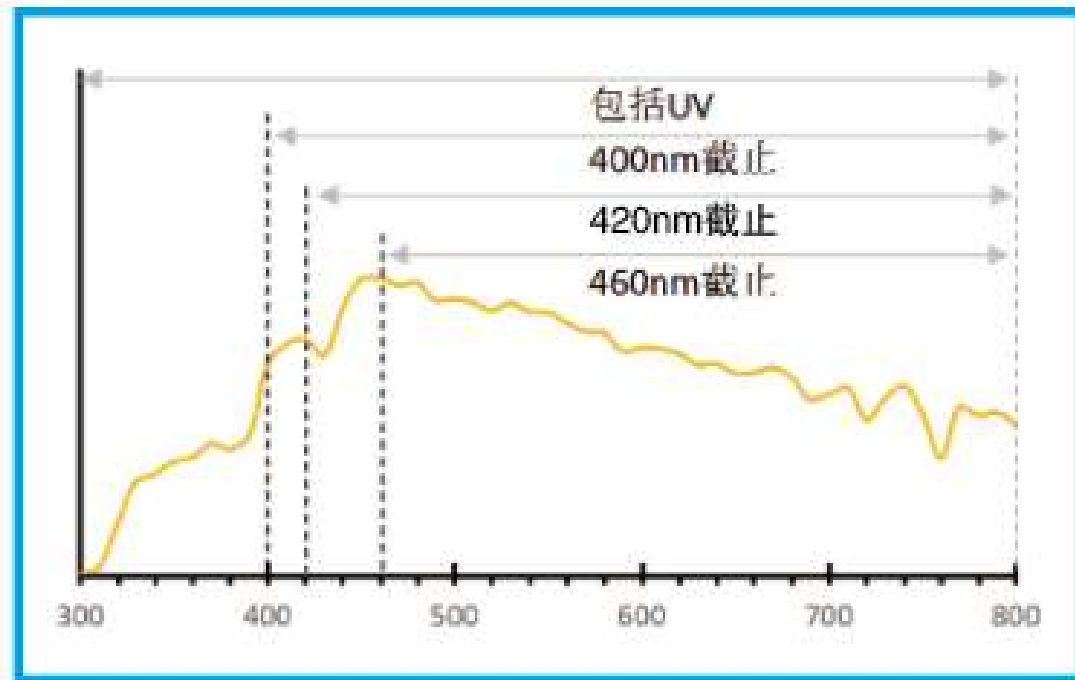
④. Compatible with SCI/SCE measurement and support SCI+SCE simultaneous measurement



CS-820N adopts the D/8 illumination observation conditions recommended by the CIE to meet the measurement needs of various industries; it can perform specular component included (SCI) and specular component excluded (SCE) measurements to gain more insight into color data changes. And support SCI+SCE simultaneous measurement, the test time is less than 4 seconds

Advanced Color Measuring Instrument

- ⑤. Four UV measurement modes to prevent fluorescence from being present.



Advanced Color Measuring Instrument

⑥.4 kinds of measuring apertures, the instrument automatically recognizes and adjusts the optical path



4 kinds of apertures (30mm, 18mm, 11mm, 6mm)



The instrument automatically recognizes the aperture and adjusts the optical path, saying goodbye to manual

Better User Experience

①. Configure Android operating system and rotatable touch screen

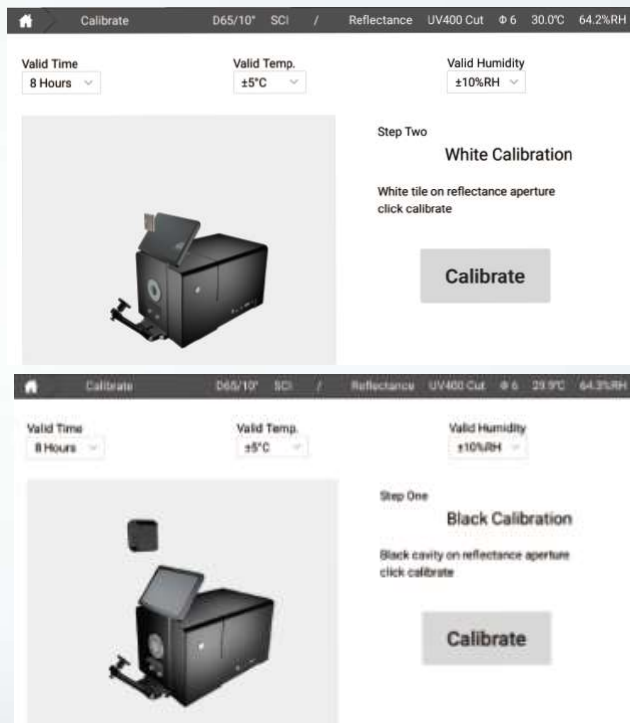


The Android APP-based instrument APP and the 7-inch large-screen touch screen are as smooth and convenient as the daily operation of the mobile phone, making it easier to get started.

Better User Experience



②. Automatic calibration

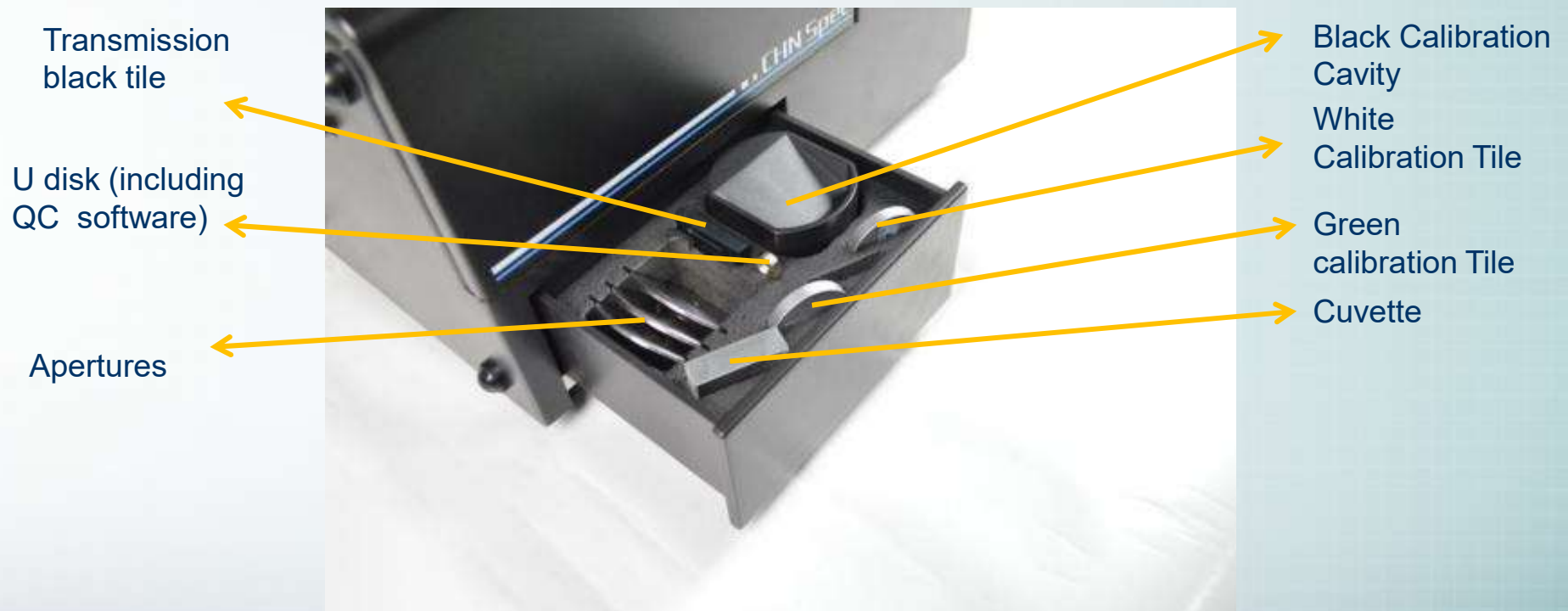


Auto white and black calibration, as soon as instrument starts, it can be used.

Better User Experience



③. Built-in accessories drawer for easy protection and storage



Better User Experience

④.A wide range of accessories to meet a variety of testing needs



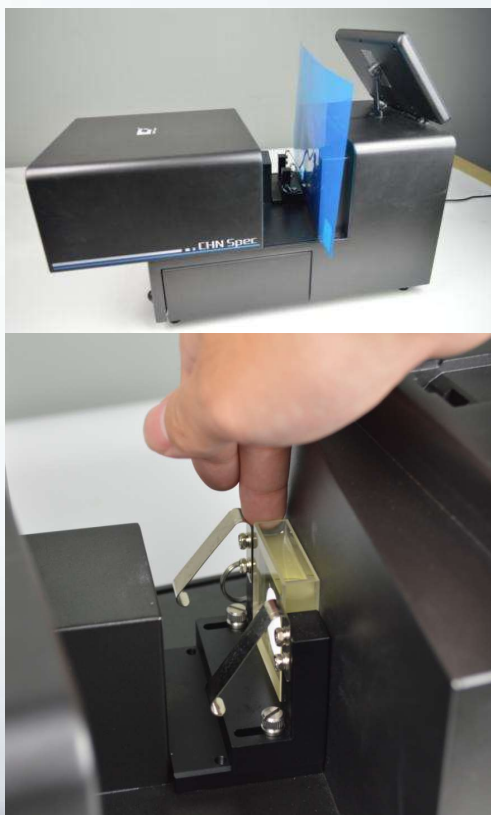
15 Standard Accessories



12 Optional Accessories

Better User Experience

⑤. Open transmittance measurement area for large sample measurement



The open transmittance measurement area is not limited on the size of the sample, and even large-size glass can be easily handled.

Better User Experience

⑥. A variety of measurement directions to meet different samples testing



horizontal measurement



upward measurement



downward measurement

CS-821N Technical Parameter



Illumination/ Viewing System	Reflectance: d/8(Diffused illumination, 8 degree viewing) Simultaneous measurement of SCI/SCE, conform to CIE No.15, GB/T 3978, GB 2893, GB/T 18833, ISO7724/1, DIN5033 Teil7, JIS Z8722 condition C, ASTM E1164,ASTM-D1003-07 Transmittance d/0(Diffused illumination, 0 degree viewing)
Sensor	Silicon Photodiode Array
Grating Method	Concave Grating
Sphere Diameter	152mm
Wavelength	360-780nm
Wavelength Pitch	10nm
Half Band Width	5nm
Reflectance Range Resolution	0-200% 0.01%
Light Source	Pulse Xenon Lamp and LED
UV Measurement	Include UV, 400nm cut, 420nm cut, 460nm cut
Measurement Time	SCI/SCE < 2s SCI+SCE < 4s
Measurement Aperture	Reflectance: XLAV Φ 30mm, LAV 18mm,MAV Φ 11mm,SAV Φ 6mm Transmittance: Φ 25mm (Auto aperture size recognition)
Transmittance Sample Size	No limit on sample width and height, thickness \leq 50mm

CS-821N technical parameters

Long Term Repeatability	XLAV Chromaticity value: Standard deviation within ΔE^*ab 0.015 (20°C±10°C arbitrary temperature change, white tile is measured every hour within 24 hours)
Repeatability	XLAV Spectrum Reflectance/Transmittance: standard deviation within 0.1%
	XLAV Chromaticity value: Standard deviation within ΔE^*ab 0.015 * When a white calibration plate is measured 30 x at 10-second intervals after white calibration
Inter-Instrument Agreement	XLAV ΔE^*ab 0.15 (BCRA Series II, Average measurement of 12 tiles, at 23°C)
Observer	2° and 10°
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,DLF,NBF,T L83,TL84
Language	English, Russian, Spanish, Portuguese, Japanese, Thai, Korean, German, French, Polish, Chinese (simple and traditional),
Display	Reflectance and Transmittance graph/value, color value, color difference values, pass/fail, color simulation, color assessment, haze, liquid chromaticity values, color tendency
Color Spaces	L*a*b, L*C*h, Hunter Lab, Yxy, XYZ
Other Indices	WI(ASTM E313-00,ASTM E313-73,CIE/ISO, AATCC, Hunter, Taube Berger, Stensby) YI(ASTM D1925,ASTM E313-00,ASTM E313-73),Tint(ASTM E313-00),Metamerism index milm, stain fastness, color fastness, ISO brightness, R457, A density, T density, E density, M Density, APHA/Pt-Co/Hazen, Gardner, Saybolt, ASTM color, Haze, Total Transmittance, Opacity, Color Strength
Color Difference	ΔE^*ab , ΔE^*CH , ΔE^*uv , ΔE^*cmc , ΔE^*94 , ΔE^*00 , ΔE^*ab (hunter),555 shade sort
Storage Memory	8 GB U Disk for data storage and transfer
Screen Size	7 Inches Touch Screen
Operate System	Android
Power Adaptor	12V/3A
Operate Temperature	5-40°C(40-104F), relative humidity 80% (at 35°C) no condensation
Storage Temperature	-20-45°C(-4-113F), relative humidity 80% (at 35°C) no condensation