#### Introduction

## Portable Spectrophotometer CS-500/520

Hangzhou CHNSpec Technology Co., Ltd

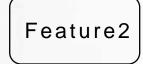






### ColorSpec for High Accuracy Color Test

 It can pass Level I of National Institute Metrology
Spectrophotometer, 20 kinds of color spaces, 26 kinds of illuminants





#### **Excellent Inter-instrument Agreement and Repeatability**

Level I national institute metrology Repeatability < 0.03\* Inter-instrument agreement < 0.2 Ensures test results consistency of different devices

### Auto Calibration

Feature 3

The revolutionary auto calibration technology allows the instrument to achieve automatic calibration, which greatly improves the user experience.





#### **Connect to APP to expand more functions**

Connect to APP to find the similar color from different color swatches.

Personal color database can also be established

Samples saved in cloud can be set into target for color difference test



White Tile Top Quality Ceramic

Brightness > 98 | Wear-resistant | Unchanging Color

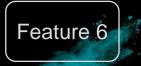
#### **Multi-function Calibration Base**

Combine calibration and charging in one base

When instrument is placed on the base, it will be automatically charged and calibrated which saves a lot of time for user.







### Switchable Apertures

Durable and stable aperture sizes to measure samples with different sizes



Spectrophoton

#### Camera to see the measurement area

Integrated camera to see the measurement area for accurate test

### Excellent Appearance Design

✓ One-piece body, streamlined appearance

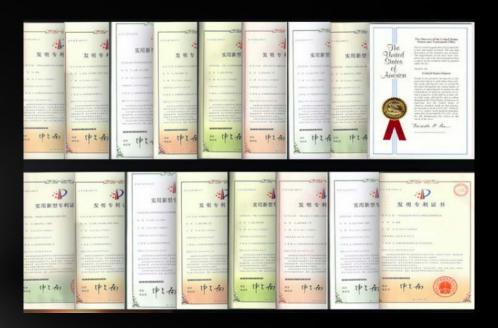
Ergonomic design

Vertical design, vertical placement not only saves space but is more stable



#### Patented Technology

26 National Patents





#### **Color Spec Product Advantages**

- ✓ High accuracy, it can pass Level I metrology
- ✓ Auto calibration for better user experience
- ✓ Connect to APP to find similar color
- ✓ UV included /UV excluded ,UV calibration
- ✓ Multi-function calibration base, combine calibration and charging functions
- ✓ SCI/SCE
- ✓ Integrated camera to see the measurement area for accurate test



#### Color Spec Series Products

Model	Instrument	Light Source	Wavelength Range			Auto Calibration	Aperture Quantity	Camera	UV	SCI/ SCE	Display Accuracy	APP
CS-500		LED	400-700nm	dE≤0.05	0.3	v	1			SCI	0.1	٧
CS-520	E	LED	400-700nm	dE≤0.03	0.2	v	3	v	٧	٧	0.01	٧



Parameters

Model	CS-500	CS-520				
Geometry	D/8 (diffused illumination,8° viewing), Specular Component Included ( SCI )	D/8 (diffused illumination,8° viewing), SCI ( Specular Component Included ) , SCE ( Specular Component Excluded )				
Color Spaces and Indices	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/ISO, AATCC, Hunter, Taube Berger Stensby), YI(ASTM D1925,ASTM E313-00,ASTM E313-73), Blackness(My,dM),Color Fastness, Tint,(ASTM E313-00),Color Density CMYK(A,T,E,M), Milm, Munsell, Opacity, Color strength	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/ISO, AATCC, Hunter, Taube Berger Stensby), YI(ASTM D1925,ASTM E313-00,ASTM E313-73), Blackness(My,dM),Color Fastness, Tint,(ASTM E313-00),Color Density CMYK(A,T,E,M), Milm, Munsell, Opacity, Color strength				
Light Source	LED(Full band balanced LED)	LED(Full band balanced LED)				
Illumination Area/Aperture	MAV:Ф8mm/Ф11mm	MAV:Ф8mm/Ф11mm; MAV:Ф4mm/Ф6mm; MINI:1*3mm				
Wavelength Interval	10nm	10nm				
Wavelength Range	400-700nm	400-700nm				
Repeatability	Chromaticity value: Max. :dE*ab< 0.1, Average :dE*ab< 0.05, standard deviation within ΔE*ab 0.03 (when a white tile is measured 30 times at 5-seconds interval) Reflectance: standard deviation < 0.1%	Chromaticity value:Max. :dE*ab< 0.04, Average :dE*ab< 0.03, standard deviation within ΔE*ab 0.02 (when a white tile is measured 30 times at 5-seconds interval) Reflectance: standard deviation < 0.1%				
Test Time	About 2s	About 1s				
Interface	USB , Bluetooth	USB , Bluetooth				
Illuminants	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12, CWF,U30,U35,DLF,NBF,TL83,TL84	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U 30,U35,DLF,NBF,TL83,TL84				
Display Accuracy	0.1	0.01				
	Conform to CIE No. 15 GB/T 3978 GB 2893 GB/T	Conform to CIE No. 15 GB/T 3978 GB 2893 GB/T 18833 ISO7724				



Model	CS-500	CS-520				
Sphere Size	40mm	40mm				
Reflectance Range	0-200%	0-200%				
Reflectance Resolution	0.01%	0.01%				
Observer Angles	2°,10°	2°,10°				
Battery	Rechargeable, 8000 times continuous tests, 3.7V/3000mAh	Rechargeable, 8000 times continuous tests, 3.7V/3000mAh				
Lamp Lifetime	10 years, 1 million tests	10 years, 1 million tests				
Language	Chinese and English	Chinese and English				
Software	Andriod,IOS,Windows	Andriod,IOS,Windows				
Camera	without	with				
Pass Metrology	Yes, metrology level I	Yes, metrology level I				
Storage	APP mass storage	APP mass storage				
Sensor	256 pixel CMOS sensor	256 pixel CMOS sensor				
Inter- instrument agreement	$\Delta E^*ab$ < 0.3 ( BCRA Series II, average measurement of 12 tiles , MAV/SCI )	$\Delta E^*ab$ < 0.2 ( BCRA Series II, average measurement of 12 tiles , MAV/SCI )				
Screen	IPS Full Color Screen,2.4 inches	IPS Full Color Screen,2.4 inches				
Calibration	Auto	Auto				

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# New Generation Spectrophotometer CS-500/520

by CHNSpec Tech

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