

COLOR MANAGEMENT

Color Management Equipment and Solutions

Shenzhen 3nh Technology Co., Ltd.
Colorcontroller Hk Limited

4/F, Building 8, Nangang Second Industry Zone, XiliNan
shan District, Shenzhen, China.

Tel :86-755-26508999 Fax:86-755-27190609

Email: sales@3nh.com

Website: www.3nh.com

Shenzhen Tilo Technology Co.,Ltd.

Room 416-418,Shanghai Youth Business Plaza No. 2680
Humin road,Minhang district, Shanghai, China.

Tel :86-21-61278111 Fax:86-21-61278128

Email:mail@tilo.cn

Product appearance and specifications are subject to change without prior notice
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COLOR MANAGEMENT

Color Management Equipment and Solutions

3nh® TILO®



COLORIMETER SPECTROPHOTOMETER
COLOR MATCHING SYSTEM
COLOR LIGHT BOX TUBES
RESOLUTION TEST CHART COLOR CHART
DIGITAL CAMERA TEST LIGHT BOX
DIGITAL COLOR MEASUREMENT SYSTEM
GLOSS METER PRINTING DENSITY METER

Shenzhen 3nh Technology Co., Ltd.

COMFORTABLE SERVICE

ADVANCED PRODUCTS

EXCELLENT STAFF

CUSTOMER CONFIRMATION

INDEPENDENT DEVELOPMENT

BELLWETHER
COLOR MANAGEMENT LEADER



lenovo

EMERSON

KELON

YOUNGOR

Haier

Colgate

Galanz 格兰仕



步步高



SEIKO

SIEMENS

SONY

YKK

PHILIPS

ABOUT US

Shenzhen 3nh Technology Co.,Ltd. is a high-tech enterprise. we research,develop,produce and market photoelectric detection products in photoelectric detection technology field and color management field after years of intensive research,3nh has launched ns series spechtrphotometer and nh,nr series colorimeter,NHG intelligent gloss instrument, HG automatic calibration type gloss meter,ISO1233 resolution test chart, optical image test solution and specific standard illuminant which are widely used in plastic ,electronic, paint, inktextile, garment ,printing and dyeing, food, medical cosmetic, optical image lest industries and the field of scientific research, school and laboratory. Our products are exported around the world. We can provide customization service which has been well received by customers.

SERVICE CONCEPT

Focus on color for 18 years to make it better
Integrity wins the world

Continuous research and development innovation
for excellence

Constantly create value for customers

STABLE PERFORMANCE HIGH PRECISION

NHG SERIES TOUCH SCREEN GLOSS METER

Large Touch Screen Operation

HG SERISE ECONOMIC GLOSS METER

Fully Automatic Calibration



NHG series intelligent touch screen gloss meter and HG series economic gloss meter is independently developed by 3nh, with independent intellectual property. Manufactured according to International standard ISO2813 and Chinese standard GB/T 9754, it is the world's first full large touch screen gloss meter. Tri-angle and 60 degree model meet most customers' requirement. With GQC6 PC software, gloss measurement is more convenient use. Stable performance and high accuracy measurement makes it very popular all over the world.



Color capacitive touchscreen, the world's first full touch operation



Simultaneous display multiple sets of measurement data, good for comparison



Manually input gloss value, convenient to use



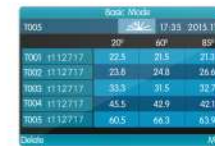
PC software have powerful extended functions

PRODUCT CHARACTERISTICS

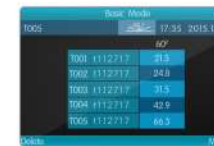
1. 3.5 inch high resolution 480*320 large touch screen
2. Comply to ISO 2813, ASTM D523, GB/T 9754, ASTM D2457
3. Beauty appearance, good man-machine communication interface
4. One button for all angles measurement at the same location
5. Display 5 sets of measurement data, good for comparison
6. Basic measurement, statistical measurement, continuous measurement for different requirement
7. Built-in lithium ion rechargeable battery with long lifespan
8. Connect to PC, more extend functions
9. Input gloss value manually, convenient to use
10. Large storage to save over 5000 data



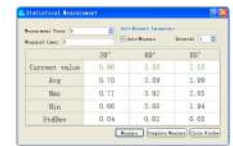
1. Large Touch Screen



2. Tri-angle for different use



3. Multi sets of data for better comparison



4. GQC6 PC software

SPECIFICATION PARAMETER

Model	NHG268 Tri-Angle Intelligent Gloss Meter	NHG60 Single Angle Intelligent Gloss Meter	NHG60M Small Aperture Gloss Meter
Measuring Angle	20° 60° 85°		60°
Standard	ISO 2813, GB/T 9754, ASTM D 523, ASTMD 2457 Display 5 sets of test data.		
Characteristics	Input glossiness value manually.		
Measuring Area (mm)	20°:10x10, 60°:9x15, 85°: 5x36	9x15	1.5x2
Measuring Range	20°:0-2000GU 60°:0-1000GU 85°:0-160GU		0-1000GU
Division Value	0.1GU		
Range	0-10GU 10-100GU 100-2000GU		0-10GU 10-100GU 100-1000GU
Repeatability	±0.1GU, ±0.2GU, ±0.2%GU		
Reproducibility	±0.2GU, ±0.5GU, ±0.5%GU		
Deviation	±1.2, ±1.2%		
Measurement Standard	Conform with JJG696 first class gloss meter working requirement		
Chromaticity Corresponding	Corresponding with CIE 1931(2°) under CIE C light source		
Measuring Time	0.5S		
Weight	350g		
Dimension	L*W*H= 160x75x90mm		
Battery	3200mAh Li-ion Battery, >10000 times (within 8 hours)		
Display	TFT 3.5 inch, touch screen		
Interface	USB/RS-232		
Storage	Basic Mode: 1000, Statistic Mode: 5000, Continuous Mode: 5000		
Software	GQC6 Quality Control Software with QC report printing function and more extended functions		
Standard Accessories	Power Adapter, USB Cable, User Manual, GQC6 software CD, Calibration Plate		
Optional Accessories	Miniature Printer		

ECONOMIC GLOSS METER

GQC6 PC SOFTWARE

GQC6 software is designed for 3nh brand gloss meter for PC connection, gloss measurement, manually gloss value input, data management, data export, print reports, etc.

1. Data management: measure, rename, record, delete, export, print, hide or display one angle data.
2. Set auto-save or not and set time / language etc.
3. Manually input gloss value.

APPLICATION INDUSTRY

Gloss meter is widely used to test glossiness in industries of automobile, paint, ink, coating, paper, printing, leather, plastic, electronic, furniture, ceramic, electroplate, hardware, marble, etc.



Automobile Leather Plastics Marble Metal Others

SPECIFICATION PARAMETER

Model	HG268 Tri-angle Gloss Meter	HG60 Economic Gloss Meter	HG60S Economic Gloss Meter
Measuring Angle	20° 60° 85°		60°
Standard	ISO 2813, GB/T 9754, ASTM D 523, ASTMD 2457		
Measuring Area (mm)	20°: 10x10, 60°: 9x5, 85°: 5x36		9x15
Measuring Range	20°: 0-1000GU, 60°: 0-1000GU 85°: 0-160GU	0-300GU	0-200GU
Division Value	0.1GU		1GU
Range	0-10GU 10-100GU 100-1000GU	0-10GU 10-100GU 100-300GU	0-200GU
Repeatability	±0.1GU, ±0.2GU, ±0.2%GU		
Reproducibility	±0.2GU, ±0.5GU, ±0.5%GU		
Deviation	±1.5, ±1.5%		
Measurement Standard	Conform with JIG696 first class gloss meter working requirement		
Chromaticity Corresponding	Corresponding with CIE 1931(2°) under CIE C light source		
Measuring Time	1S		
Dimension	L*W*H=160x75x90mm		
Weight	350g		
Language	Chinese/English		
Battery	3200mAh Li-ion Battery , >10000 times(within 8 hours)		
Display	TFT 3.5 inch		
Interface	USB/RS-232		
Storage	Basic Mode: 1000		
Software	Power Adapter, USB Cable, User Manual, GQC6 software CD (except HG60S), Calibration Plate		
Standard Accessories	GQC6 Quality Control Software with QC report printing function and more extended functions		
Optional Accessories	Miniature Printer		

TRANSMISSION LIGHT BOX NO FLASH FREQUENCY CRI > 90



1. Unique LED light or DNP original light, life up to more than 25000 hours.
2. Uniformity Illumination over 92%, CRI (Color Rendering Index) > 90.
3. Adjustable illuminance range from 0-11000lx, with 2 dimmer knobs.
4. Fits for many kinds of 4:3 transmission test charts use, like 3nh, DNP, etc.
5. Through Image test software, camera analysis result more professional and much easier.

APPLICATION

Transmission light box is widely used for digital camera, HD camera, phone camera, video camera, Security cameras, car camera, etc lens camera test quality control.



Digital Cameras HD camera Security camera Car Camera Video camera Phone Camera Others

SPECIFICATION

Model	CC5100/CC3100 with DNP original light	HC5100/HC3100 with LED light
Light source	5100K(5100K±200k) *4, 3100K(3100K±200k) *4	HC3100 ± 100k / HC5100 ± 100k Duv ± 0.002
Uniformity	>90%	>92%, CRI >90
Luminous Source	100 ~ 4400cd/m2 adjustable	100 ~ 5000cd/m2 adjustable
Illuminance	250 ~ 10000Lux adjustable	0 ~ 27000Lux adjustable
Power supply	AC230V 50/60HZ	AC100-240V 50/60HZ
Lighting method	High Frequency lighting method 20KHzHigh	Constant current source
Operating temperature	10 ~ 40°C	10 ~ 40°C
Operating humidity	Below 80%(avoid dew)	Below 80%(avoid dew)
Major diameter dimension	38.5W*34H*15Dcm	37W*32.5H*16.5Dcm
Luminance plane dimension	25W*19Hcm	25W*19Hcm



YOUR CHIEF COLOR EXPERTS

SPECTROPHOTOMETER
NS810/NS800

NS800 series spectrophotometer is developed by 3nh with numbers of innovative technology and many patents. NS800 series has high configuration and powerful functions in the leading position of the same industry.

SPECTROPHOTOMETER NS810

D/8 structure(diffuse illumination,8° viewing)

SPECTROPHOTOMETER NS800

45/0 method (45 ring-shaped illumination,vertical viewing)



15 Degree screen to display upside-down and up



Large Storage Space with High hardware configuration



3.5 inch large capacitive touch screen, fully functional touch control.



58mm large integrating sphere, more accurate measurement

PRODUCT FEATURES

1. Display complete reflectance rate and input LAB value manually.
2. NS810:D/8 structure (diffuse illumination, 8° viewing)
NS800:45/0 method (45 ring-shaped illumination, vertical viewing)
3. 3.5 inch large capacitive touch screen, fully functional touch control.
4. 2°/10° degree observe, multiple lights, many color systems.
5. The repeatability ΔE^*ab is within 0.04, errors is less than 0.2
6. Large capacity storage, more than 15000 data.
7. PC software with powerful extension functions.
8. 15° oblique angle screen, in line with the human eye observation.
9. Oversized integrating sphere, more effective homogenization ray of lights.
10. High hardware configuration with a number of innovative technologies.



APPLICATION INDUSTRY

NS810/NS800 spectrophotometer is widely used in plastic, electronic, paint, ink, textile, garment, printing and dyeing, foodmedical cosmetic industries, scientific research institutes, schools and laboratories. It can measure reflectance spectrum and other color index precisely. NS810/NS800 spectrophotometer not only can help to perform color matching and color management studies, but also can control product quality management Accurately. The instrument is equipped with high-end color management software which can connect PC to achieve more extension functions.



SPECIFICATION PARAMETER

SPECTROPHOTOMETER NS810

Illumination/Observation System: D/8 structure

Wavelength Range: 400~700nm

Wavelength Interval: 10nm

Reflectance Range: 0~200%

Color Space: CIE LAB,XYZ,Yxy,LCh,CIE LUV

Color Difference Formula: $\Delta E^*ab, \Delta E^*uv, \Delta E^*94, \Delta E^*cmc(2:1)$

$\Delta E^*cmc(1:1), \Delta E^*cmc(l:c), CIE2000 \Delta E^*00, \Delta E (h)$

Chromaticity Data: WI(ASTM E313, CIE/ISO, AATCC, Hunter)

YI(ASTM D1925, ASTM 313), Metamerism Index (Mt), color strength
Color Stain, Color Fastness, Opacity

Illuminant: D65, A, C, D50, D55, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9
F10, F11, F12

Measuring Aperture: $\Phi 8mm$

Observer: 2°/10°

Repeatability: within Delta E^*ab 0.04

Errors between Each instrument: Within Delta E^*ab 0.2

Storage: 1000 Standards, 15000 Samples

Optional Accessory: Universal Test Components for liquid, powder particle, Micro Printer, Powder Test Box

SPECTROPHOTOMETER NS800

Illumination/Observation System: 45°/0° structure

Wavelength Range: 400~700nm

Wavelength Interval: 10nm

Reflectance Range: 0~100%

Color Space: CIE LAB, XYZ, Yxy, LCh, CIE LUV

Color Difference Formula: $\Delta E^*ab, \Delta E^*uv, \Delta E^*94, \Delta E^*cmc(2:1)$

$\Delta E^*cmc(1:1), \Delta E^*00$

Chromaticity Data: WI(ASTM E313, CIE/ISO, AATCC, Hunter)

YI(ASTM D1925, ASTM 313), TI(ASTM E313, CIE/ISO), Opacity
Metamerism Index (Mt), Color strength, Color Stain, Color Fastness

Illuminant: D65, A, C, D50, D55, D75, F2, F6, F7, F8, F10, F11, F12

Measuring Aperture: $\Phi 8mm$

Observer: 2°/10°

Repeatability: within Delta E^*ab 0.04

Errors between Each instrument: Within Delta E^*ab 0.2

Storage: 1000 Standards, 15000 Samples

Optional Accessory: Universal Test Components for liquid, powder particle, Micro Printer, Powder Test Box

MODEL: NH310

NH310 is a mainstream brand colorimeter introduced by 3nh which has synthesized the advantages of ten more traditional imported colorimeters. Accurate, Stable Exquisite and Affordable!



MODEL: NH300

Nh300 is the highest cost-effective portable colorimeter with high precise in NH series.



PRODUCT FEATURES

1. Leading Humanity Design and Convenient Operation

Auto White and Black Calibration at Startup
Structure Design in line with Ergonomics
Easy-to-use Operation Interface.

2. Stable Measurement Performance

The average fluctuation of ΔE is less than 0.06, actually more in 0.03~0.06.
Portable structure design which is more conducive to keeping the instrument stable when using.

3. More Measurement Modes

Three measuring apertures for more circumstances.
Five color spaces for more color schemes selection.
Three light sources for more circumstances.

4. Flexible and Accurate Locating

Camera locating can solve the problem of locating a small area. The minimum width of locating is 4mm.
Illumination locating is a fast, simple and convenient locating function which is the original function by 3nh.

5. PC Software and Li-ion Battery

PC software can perform color difference analysis, color difference cumulative analysis chromaticity index, color sample database management, simulating object color, etc.
Advanced Li-ion battery can measure over 3000 times on one charge.

6. Optional Accessories



SPECIFICATION PARAMETER

Model	Locating	Calibration	ΔE	Aperture	Light Source	Color Space	SCI/SCE	Whiteness	Formula	Yellowness	CQCS3 software
NH310	Camera Illumination Locating	Automatic Manual	<0.06	8mm/4mm	D65 D50 A	Lab XYZ CIE-RGB LCH Luv	✓	✓	✓	✓	✓
NH300	Illumination Locating	Manual	<0.07	8mm	D65	Lab XYZ	-	-	-	-	✓



MAKE THE MEASUREMENT EASIER

NR60CP

High cost-effective precise colorimeter features with powerful functions and excellent innovation technology.

PRODUCT FEATURES

1. 8mm and 4mm double aperture for switch, easy to measure concave sample in large plane
2. More stable and accurate, $\Delta E^* ab < 0.03$
3. Many color spaces, many color indexes, extensive applicability
4. Double locating: illuminating locating and cross locating
5. Equipped with rechargeable high-capacity li-ion battery
6. Built-in white plate parameters, and configuration of physical whiteboard, easy to operate;
7. New integrating sphere optical path design, more stable to measure;
8. Double apertures measurement data can pass SCM metrological certification;



Φ8mm aperture

Φ4mm aperture

SPECIFICATION PARAMETER

Illuminating/Viewing Geometry: 8°/d
Light Source: LED Light
Sensor: silicon photodiode array
Measuring Aperture: Φ8mm flat aperture; Φ4mm tip aperture
Color Space: CIE LAB, XYZ, LCH, CIE RGB, CIE LUV
Color Difference Formula: $\Delta E^* ab, \Delta E^* (h), \Delta E^* uv, \Delta E^* 94$
 $\Delta E^* cmc (2:1), \Delta E^* cmc (1:1), \Delta E^* 00$
Other Chromaticity Data: WI, Color Fastness, Staining Fastness
 J PC79,BFD(1.5:1), FMCI1
Observer: CIE 10°
Illuminant: D65, A, C, D50, F2, F6, F7, F8, F10, F11, F12
Display Data: Colorimetric Value, Color Difference Value/Graph
 PASS/FAIL Result, Color Offset,
Measuring Time: 0.4s

Repeatability: $\Delta E^* ab 0.03$ (Average of 30 measurements of standard white plate within 5s)
Errors between Each Instrument: within Delta E*ab 0.2
Dimension: 205*67*80mm
Weight: 500g
Battery: rechargeable lithium-ion battery 3.7V @ 3200mAh
Lamp Life: 5 years, more than 1.6 million measurements
Screen: TFT 2.8 inch (16:9)
Interface: USB/RS-232
Storage: 100 Standards, 20000 Samples
Operating Temperature: 0~40°C (32~104°F)
Storage Temperature: -20~50°C (-4~122°F)
PC Software: CQCS3 software
Optional Accessory: miniature thermal printer, powder test box



NR110 High cost-effective precise colorimeter features with powerful functions and excellent innovation technology.

1. Built-in white plate parameters. No need to calibrate each time which realize rapid measurement.
2. Double Locating: Illuminating locating and precise cross locating.
3. New Integrating Sphere Optical Path Design: Possessing the highest measurement stability and precision.
4. 4mm Measuring Aperture.
5. Equipped with rechargeable high-capacity Li-ion battery. No need to purchase battery repeatedly.
6. Exquisite appearance: adopts traditional and fashionable aesthetic designs.

SPECIFICATION PARAMETER

Illuminating/Viewing Geometry :8°/d	Errors between Each Equipment : $\leq 0.80\Delta E^*ab$
Measuring:Φ4mm	Storage:100pcs standards 20000pcs samples
Detector:Silicon photoelectric diode	Repeatability: $\Delta E^* ab 0.08$
Locating:Illuminating Locating/Cross Locating	Average of 30 measurements of standard white plate
Measurement End Face:Large stable end-face and small concave-convex end-face	Language:English/Chinese
Color Space:CIEL*a*b*c*h* CIEL*a*b* CIEXYZ	Dimension:205×67×80mm
Color Difference Formula: $\Delta E^*ab \Delta L^*a^*b^* \Delta E^*C^*h^*$	Power Source:Lithium battery 3.7V@3200mAh
Light Source:D65	Lamp Life:5 years, more than 1.6 million measurements
Light Source Device:LED blue light excitation	PC Software:CQCS3 Software
	Printer (optional):Miniature thermal printer



NR200

High stability and high accuracy

Model	Locating	Calibration	ΔE	Aperture	Light Source	Color Space	SCI/SCE
NR200	Illumination Locating	Manual	<0.08	8mm	D65	CIE-Lab CIE-XYZ CIE-LabCH	SCI



NR20XE

20mm diameter aperture

Model	Locating	Calibration	ΔE	Aperture	Light Source	Color Space	SCI/SCE
NR20XE	Cross Locating Illumination Locating	Manual	<0.08	20mm	D65	CIE-Lab CIE-XYZ CIE-LabCH	SCE



NR145

Different innovation technologies

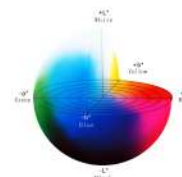
Model	Locating	Calibration	ΔE	Aperture	Light Source	Color Space	SCI/SCE
NR145	Cross Locating Illumination Locating	Manual	<0.08	8mm	D65	CIE-Lab CIE-XYZ CIE-LabCH	SCE



NR10QC

The cheapest colorimeter

Model	Locating	Calibration	ΔE	Aperture	Light Source	Color Space	SCI/SCE
NR10QC	Cross Locating Illumination Locating	Manual	<0.03	4mm	D65	CIE-Lab CIE-XYZ CIE-LabCH	SCI



COLORIMETER SPECIAL CUSTOMIZATION SERVICES

Special function customized service is to meet customers' kinds of requirements. Include: Display Mode/Color Formula/Special Light Source/Whiteness Brightness etc full functions

MatchColor is a full software with 6 modules. As far as it is very complete, it is mainly dedicated to big factory which have a color laboratory with colorist using it all day long. The 6 modules are:

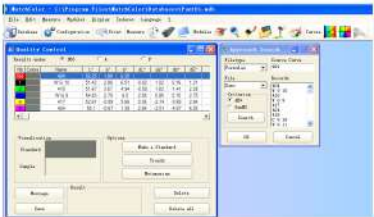
1-Color Quality Control with different indexes (WI, YI, Opacity, Color strength) and graphics.



Color inspection and quality control

2-Approach Search

which allows to classify all colors in a file (spectral or formulas files) from a standard.



Search close colorimetric method

3-Colorant Characterization

This module uses a spectral file of all colorants letdowns (some mixtures with white and one with black) and measurements (made in general with quality control module). It allows calculating and displaying the fitting curves of K (light absorption) and S (light diffusion) versus concentration. It allows building up what we call a colorant file.



4-Formulation by Combination

This formulation module combines all the colorant of a colorant file to calculate thousands of formula and display the best regarding DE, price or metamerism.



New amethod recipe

5-Manual/Automatic Formulation

With this module, the user selects manually the colorants he wants to use in the formula. Then formulation can be calculated automatically by curve fitting or by color coordinate. This mode can be very useful in a research laboratory to do simulations

6 - Correction Module

2 correction modes are available:

-Correction by reformulation. The software calculates a new formula which give the correction to match the standard.

-Correction by adding. The software calculates the minimum quantity of each colorant you need to add in a given basic quantity. This mode is also used to recycle work off products.



Recipe correction

MatchColor can support 3nh spectrophotometer, Konica Minolta Spectrophotometer and Datacolor spectrophotometer.

Imatest Master



Imatest Master is a GUIbased application that can be used to set camera product requirements in R&D. Measure device sharpness (MTF), perceptual sharpness (SQF), color response, noise, dynamic range, tonal response, lens flare (veiling glare), lens distortion, lens vignetting, and sensor nonuniformity with SFR, Colorcheck, Multicharts, Stepchart, Distortion, and Light Falloff.

Imatest Image Sensor (IS)



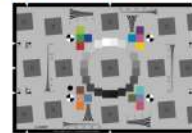
In addition to the features of Imatest Master, the Imatest Image Sensor (IS) edition also offers the ability to dynamically load images from a variety of camera and image sensor sources.

Imatest Industrial Testing (IT)



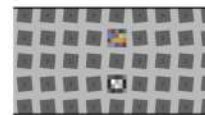
Imatest Industrial Testing (IT) software allows for the integration of key Imatest Master and Imatest Image Sensor (IS) module functionality into your custom testing programs. Quickly test products on the production line while maintaining quality standards. Manage multiple suppliers using one unbiased testing algorithm and catch issues earlier in your supply chain.

ISO 12233:2014 ESFR



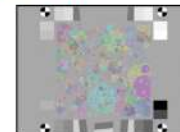
All Imatest ISO 12233:2014 ESFR charts are fully compliant with the ISO Low Contrast EdgeSFR test chart standard. Standard: basic, no extra measurement features, inkjet prints. Enhanced: extra squares, wedges and color patterns when printed with technologies that allow color. Inkjet and photographic print options. Extended: similar to Enhanced, but with a 16:9 aspect ratio, suitable for HDTV and cinema, inkjet prints.

SFRplus Charts



Imatest' s ISOcompliant SFRplus charts are designed to work with all Imatest software to provide automated, comprehensive image quality analysis. SFRplus charts test for MTF, noise, lateral chromatic aberration, dynamic range, among many other image quality factors.

Texture Charts



Imatest texture charts measure texture sharpness and come in color and black and white. The "Dead Leaves" chart was the first chart to test a camera' s ability to reproduce texture.

Color Matching Light Box No.1

TILO was founded in 1998
Global Sales No.1



T60+ P60+

1. Composite engineering plastics, Processing in all mould mode
2. Be able to add the elastic mats and light barrier
3. Display each light source using time, name and off and on times
4. Light source automatic switch
5. No warm and flashing, low energy consumption, no fever
6. More complete Britain-American general light source



T60(4) Color Light Box
D65/TL84/UV/F
Size: 71 x 40.5 x 57 cm



T60(5) Color Light Box
D65/TL84/CWF/UV/F
Size: 71 x 40.5 x 57 cm



P60(6) Color Light Box
D65/TL84/CWF/UV/F/TL83
Size: 71 x 53 x 57 cm



P120 Large Size
D65/TL84/CWF/UV/F/TL83
Size: 131 x 60 x 80 cm



P60 S Upgraded light box
D65/TL84/F/CWF/TL83/UV
Size: 69 * 55 * 50 cm



M60 (American Style)
D65,TL84,U30,CWF,UV,F
Size: 71 x 53x 57 cm



T60B (British Style)
D65/TL84/UV/F
Size: 71 x 40,5 x 57 cm



CC120 Common Color Viewer
Multiple tubes selectable
higher illumination evenness



VeriVide (British)

CAC60 CAC120 CAC150Models
D65,TL84/U30,CWF,UV,F
N5 standard grey environment
Widely used in Europe



X-rite Judge QC light box

D65,TL84/U30,CWF,UV,F
N7 standard grey environment
Widely used in all over the world
Made in China



X-rite SpectraLight QC

Size: 950*940*1270 (mm)
D65 or D50, D50/ CWF/ U30/ T
L84/ HOR/ A/ UV 7 tubes
Made in China

TUBES AND LAMPS

Provide a full range of standard lamps and tubes:

D65, D50, D75, D35, TL84, CWF, UV
U30, TL83, U35, F, A, INCA, HOR

SYLVANIA D65 Tube
Model : F20T12/65 6500K 20W
Size : 60cm
Brand : SYLVANIA
Origin : GERMANY



PHILIPS D65Tube
Model: TLD18W/965
Size: 60cm
Brand: PHILIPS
Origin: Netherlands



VeriVide D65Tube
Model: F20T12/D65
Size: 60cm
Brand: VeriVide
Origin: E.E.C.

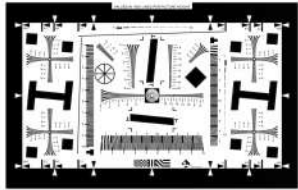


Ecolux U35Tube
Model: F17T8 SPX35 ECO
Size: 60cm
Brand: GE
Origin: USA

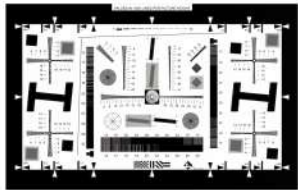


PHILIPS UV Tube
Model: TLD18W BLB
Size: 60cm
Brand: PHILIPS
Origin: Netherlands

OPTICAL IMAGE TEST SOLUTION



ISO12233 Resolution Test Chart



ISO12233 Enhanced Resolution Test Chart

Resolution Test Chart	
(Product No.)	(Active Area)
NQ-10-100A (1X)	200 x 356mm (7.87 x 14in)
NQ-10-200A (2X)	400 x 712mm (15.75 x 28in)
NQ-10-400A (4X)	800 x 1424mm (31.5 x 56in)
NQ-10-800A (8X)	1600 x 2848mm (63 x 112in)
NQ-10-50A (0.5X)	100 x 178mm (3.94 x 7in)
NQ-10-10A (0.1X)	20 x 35.6mm (0.79 x 1.4in)

Enhanced Resolution Test Chart	
(Product No.)	(Active Area)
NE-10-100A (1X)	200 x 356mm (7.87 x 14in)
NE-10-200A (2X)	400 x 712mm (15.75 x 28in)
NE-10-400A (4X)	800 x 1424mm (31.5 x 56in)
NE-10-800A (8X)	1600 x 2848mm (63 x 112in)
NE-10-50A (0.5X)	100 x 178mm (3.94 x 7in)



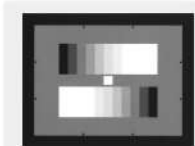
Iso14524 Dynamic Range Test Chart



DNP Color-bar Chart



DNP 9 Steps Grayscale Chart



DNP 11 Steps Grayscale Chart



X-rite 24 Color Card



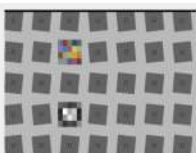
X-rite Digital Color Checker SG140



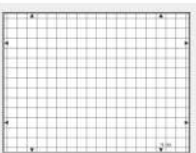
ESSER Skin Color Card



DNP Skin Color Card



SFR Chart



3NH Distortion Test Chart



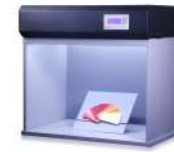
Kodak Q-14



Gray Card

STANDARD LIGHT SOURCE

NEW: T90-7 Color Light Box (Adjustable Illumination Light)



Size: 1008*716*898mm(W*D*H)
 Light source: D65, A, D50, UV, U30, TL84, U35
 4 sets of LED light (Life up to 25000 times)
 3 sets of fluorescent light source
 Adjustable illumination light with metamerism function

Camera Viewing Station Color Cabinet (Desktop)



Size: 98*60*85cm
 Standard: D65 TL84 A and three fixtures for test chart
 Optional Light Source: 10000K, D75, D50, CWF, U35, TL83
 Illuminance: 0.1-2800 lux adjustable
 Illumination uniformity: 85%-90%

Camera Viewing Station Color Cabinet (Horizontal)



Size: 98*150*150cm
 Standard: D65 TL84 A and three fixtures for test chart
 Optional Light Source: 10000K, D75, D50, CWF, U35, TL83
 Illuminance: 0.1-2800 lux adjustable
 Illumination uniformity: 85%-90%

3nh Color Viewer / Transmission Light Box



Size: 38.5W*34H*15Dcm
 Color temperature: 3100K±200K, 5100K±200K
 Uniformity: >90%
 Illuminance: 10000lux
 Compatible with 4:3 transmission test chart

Color Light Box/Color Assessment Cabinet



Size: 71*53*57 cm
 Display the using time and total time of each light
 With Light source automatic switch
 Without preheating, low energy consumption
 Without heat dissipation



CR-10 Plus Colorimeter



CM-3600a Spectrophotometer



CM-5 Spectrophotometer



CM-2300d/2500d/2600d Spectrophotometer



CR-410/CR-400 Colorimeter



CM-512m3a Spectrophotometer



CL-200A Chroma Meter



LS-150/CS-150 Color luminance meter



Chlorophyll Meter



C-7000 Spectral Color Light Meter



UG60/MG268 Gloss Meter



FD-5/FD-7 Spectrodensitometer

Ci6x Series Ci64 Portable Spectrophotometer



The Ci6x family of handheld spectrophotometers— Ci60, Ci62, Ci64 & Ci64UV is a performance-driven solution for managing color at any stage of production, and gives manufacturers a whole new level of confidence in their color data, regardless of where or when the measurements are collected.

RM200QC Portable Colorimeter



Ci7800/Ci7600 Desktop Spectrophotometer



Exact Spectrodensitometers

Ci4200/Ci4200uv Desktop Spectrophotometer



341CX Transmission Densitometer

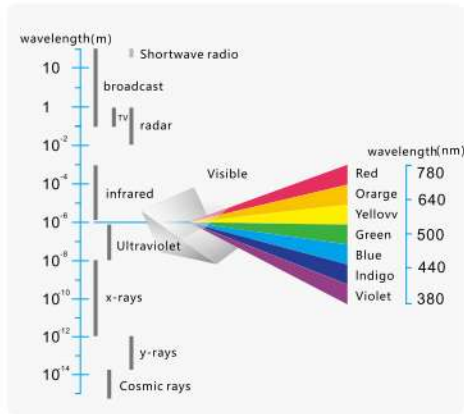
EYEOCOLOR MANAGEMENT SYSTEM

You can quickly and easily create custom monitor and projector profiles that ensure the colors you view are true, verify soft proofs and print quality with built-in Quality Assurance (QA) tools, and easily capture and manage spot colors. Plus, with X-Rite ColorTRUE free mobile app you can even calibrate your Apple® iOS phone and tablet.



1. Visible Range

From a science point of views, electromagnetic wave is a kind of energy. All objects above absolute zero will release electromagnetic wave. When the temperature is higher, the wavelength is more short. Just like the air in people' s life, we live in it, but we can not see it. Electromagnetic wave is human' s "friend" we have never meet.



The reason why our eye can see chromatograph is that certain wavelength will stimulate our retina. According to difference wavelength, the order for chromatograph is red, orange, yellow, blue, indigo, violet. Of all visible lights, red is the longest while violet is the shortest wavelength. Visible range is the area which visible to the human eyes. Light is only a part of wavelength across the universal. The width for electromagnetic spectrum is extremely board which ranges from thousands of miles waves and radio waves to wavelength 10-13m or gamma Y rays. Visible range is only a small part of electromagnetic spectrum : from 380-780nm*2. The light reflected from an object is the color we see. Actually, it is a mixture of difference wavelength lights in the visible region (except the synthetic monochromatic lights).

3. To what extent can words express colours?

There have been already several persons who came up many methods to express color. Normally it is by complex formula to show the number of colors. It is to ensure the color information exchange more easy and accuracy. Those methods are trying to propose a way to show the color by using certain number , just like the way we indicates length and weight. For example, in 1905, an American painter named A.H Munsell developed a way to express color. That is to use large amount of color paper compared with sample color by visualization (color hue (Munsell hue), lightness (Munsell lightness), saturation(Munsell saturation)).

Two of most famous color systems are Yxy system and L*a*b system. The former was originally developed based on the tristimulus theory of color perception under CIE regulation. The latter was developed in 1976, in order to give more even color difference which is relative to parallax. Both are wildly applied in the color communication.

2. Elements of color

Elements of color includes Hue, Lightness, Saturation
All the colors we see is a general effect of the three elements. There is a direct relationship between Hue and the wavelength of light, and lightness and Saturation is related to the level of the lights.

Hue

Hue is the face of color. It is the color when propagation of light rays reflected from an abject or through the object. It is the term used in the word of color for the classification of red, yellow, blue, etc.

Different color

Hue is the face of color. It is the color when propagation of light rays reflected from an abject or through the object. It is the term used in the word of color for the classification of red, yellow, blue, etc.

Lightness

Colors can be separated into bright and dark colors when their lightnesses (how bright they are) are compared. Lightness is general measured in percent from 0%(black) - 100%(white).

Bright colors, dark colors

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Saturation

Saturation, sometimes called chrominance, is meaning of the strength and purity of a color. Vivid colors, dull colors. Saturation changes outward from the center. Saturation means the strength and purity of the color. Gray component: range from 0% to 100%

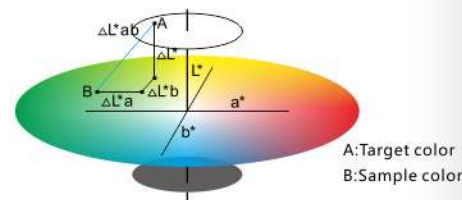
Vivid colors, dull colors

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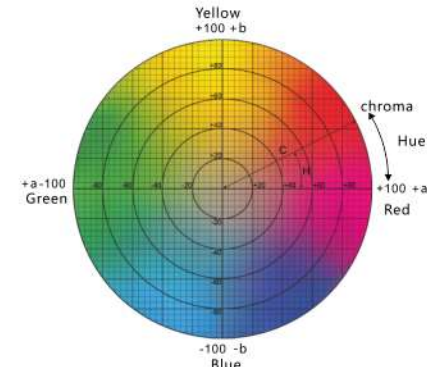
4.Common Color Formula

In the L*a*b color space, color difference can be expressed as single numerical value, which indicates the size of the color difference but not in that way the colors are different. It is defined by the follow formula:

$$\Delta E^*ab = [(\Delta L^*)^2 + (\Delta a^*)^2 + (\Delta b^*)^2]^{1/2}$$



5. Color Value ΔE, CIE LCH, CIELAB



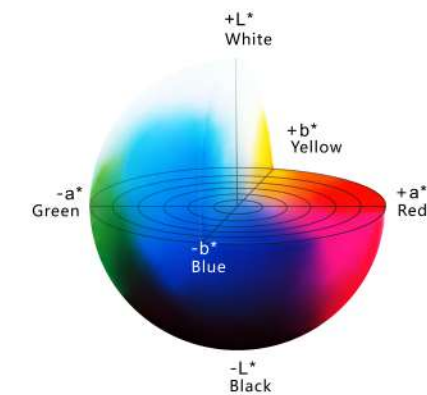
CIE LAB is a color space specified by the international commission on illumination. CIE LAB is based on the theory that one color can' t be both red and green, or blue and yellow. In that way, a single value can be used to describe red or green, yellow or blue. In the CIE LAB color space, L means lightness, a for (red-green), b for (blue-Yellow).

CIE LCH is a similar color space as L*a*b. L means brightness, C means saturation' s value, H means cylindrical coordinates' hue value. ΔE Total Color difference.

The total size of the color difference ΔE

ΔL represents large whitish, ΔL represents small blackish; Δa large expressed reddish, Δa represents small greenish; Δb represents large yellow, Δb represent small bluish.

Color difference ΔE*ab	Meaning
0 - 0.5	A normal invisible difference
0.5 - 1.0	Very small difference, only obvious to a trained eye
1.0 - 2.0	Medium difference, also obvious to an untrained eye
2.0 - 4.0	An obvious difference
4.0	A very obvious difference



6. Temperature will effect Colors

Sometimes, when the temperature changes, the color will change. This phenomenon is called thermochromism. In order to make the colorimeter measurement more accuracy, it is better to do in a certain temperature room and measure it after the measured sample reach room temperature. BCRA standard board temperature characteristic when the room temperature changed 10°C.

Colour	(ΔE*ab)	Colour	(ΔE*ab)
White	0.01	Red	1.32
Light gray	0.02	Yellow	0.92
Medium grey	0.05	Green	0.92
Dark gray	0.05	Dark Green	0.91
Deep gray	0.05	Green	0.46
Deep pink	0.60	Deep Blue	0.17
Orange	1.52	Black	0.02

7.The relative between colors and glossiness. (SCI&SCE)

SCI&SCE are two method in the color measurement. SCI means Specular Component Include, SCE means Specular Component Exclude. Under the method of SCE, only test diffuse refecton and exclude specular reflection. In that way, the test result is similar to object color was observed by human eyes. Under the method SCI, both the diffuse refecton and specular reflection will be included. In that way, the value about the color is more objective. It will not effect by the environment condition. When we choose the instrument, those elements should be taking into consideration.

8.An example of quality control with a colorimeter

Company A manufacturers exterior plastic parts ordered by company B. Company B also orders similar parts from companies other than company A. At company A, a full-time staff of inspectors is in charge of controlling color on the production line and visually evaluates products in comparison to color samples. Visual inspection depends on the eyes of skilled inspectors to determine whether a product is within the acceptable range or not as defined by the color samples. This work can not be performed by anyone. It requires years of experience to develop an ability for visual inspection. As a result, the number of people who can do this work is limited. Also, the process can be performed only for a limited period time per day or week, and the evaluation will vary according to the inspection' s age and physical condition. Sometimes, company B complained that the color of parts from company A did not match those of other suppliers and so company B returned the parts to company A. Company A decided to use colorimeter for color quality contrl. Then colorimeter is very popular due to its function of handheld, fast measurement, even any time used in every production line. Plus, they are very easy for anyone to use, and they can print a test result as proof of the company' s color quality control.