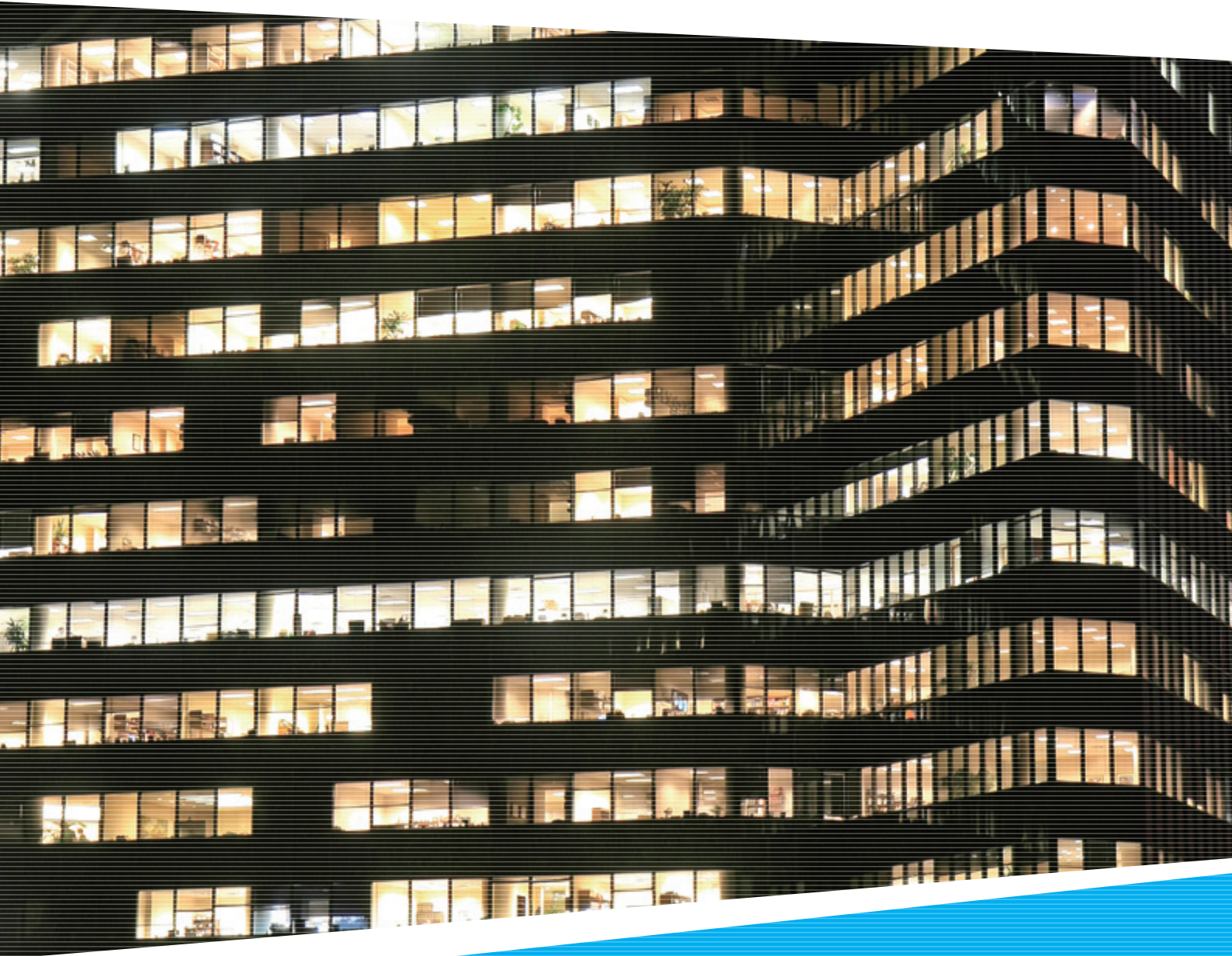


LED/Lighting Test Solution

www.chromaate.com



Chroma

Turnkey Test & Automation Solution Provider

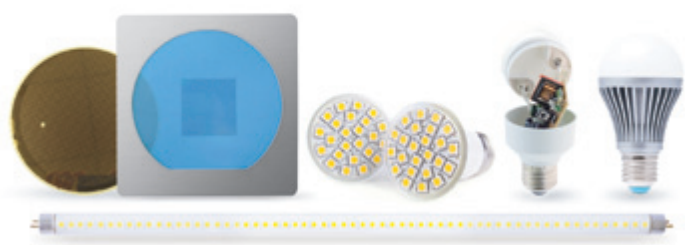


Founded in 1984, Chroma ATE Inc. is a world leading supplier of precision Test and Measurement Instrumentation, Automated Test Systems, Manufacturing Execution Systems and Turnkey Test and Automation Solutions marketed globally under the brand name "Chroma".

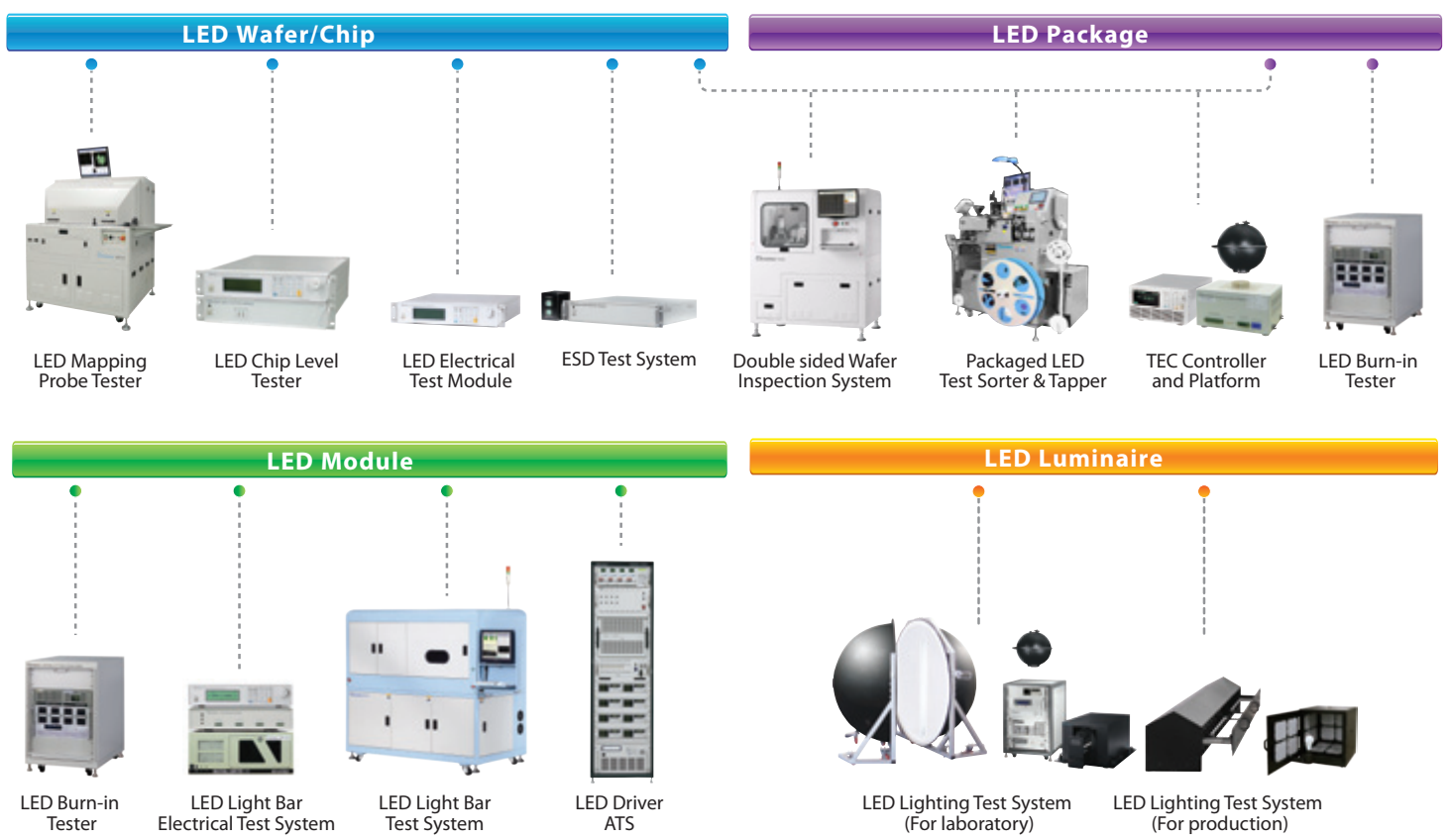
Significant markets Chroma serves include LED, photovoltaic, Li-battery, electric vehicle, semiconductor/IC, optical devices, flat panel display, video and color, power electronics, passive component, electrical safety, and thermoelectric test, as well as automated optical inspection and manufacturing execution systems.

Chroma's vision is to develop globally leading products as a world-class enterprise. To achieve this, Chroma devotes a significant amount of investment and resources in research and development in order to produce exceptional products of precision, reliability and valuable unique test solutions for technology industries. To sustain as a world-class enterprise, Chroma nurtures its brand as one of innovation, continuous improvement, and globalization ensuring its leading technology and integration capabilities in optics, mechanics, electronics, thermal control and software provide competitive advantages and future growth for the company.

Chroma has branch offices in Europe, the United States, Japan and mainland China chartered to deliver innovative technologies with high value-added service to satisfy our global customers' demands.



LED / Lighting Test Solution



LED Mapping Probe Tester

Model 58212-C

The Chroma 58212-C features an automated LED wafer/chip probe tester, delivering fast and accurate LED measurements with test times less than 125ms *1.

The system can be modified to support different LED structures including Lateral, Vertical, and Flip Chip designs. Integrated scanners provide autonomous wafer mapping to guarantee precision testing. The patented probe head prevents device scratches and ensures solid contact with every LED.

Chroma's unique design acquires and analyzes optical data such as the dominant wave length, peak wavelength, and CCT. Additionally, it provides essential electrical data such as forward voltage, leakage current, and reverse breakdown voltage, all in one test step.

The 58212-C includes a user-friendly graphical interface and advanced logic algorithms to significantly increase production efficiency. Comprehensive statistical reports and analysis tools allow for easy control and mass production management.

Note *1 : Test condition: under 300um sample pitch, 5 electrical test parameters and 1 optical parameter. Due to differences in LED characteristics, the measurement results may vary.

Key Features

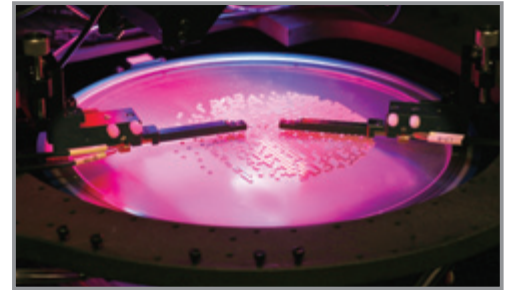
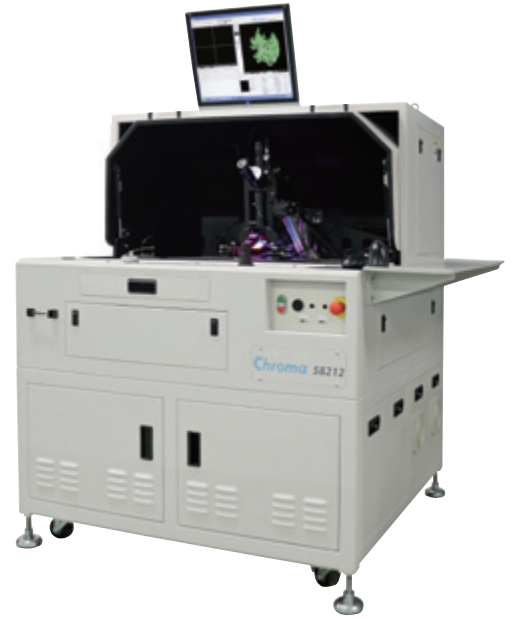
- ✓ High speed and accuracy
- ✓ Lateral, vertical, and flip chip
- ✓ Wide power test range (up to 200V/2A)
- ✓ Up to 8 inch wafers
- ✓ Chroma® Huge Photo Detector
- ✓ Unique edge sensor
- ✓ Patented probe head
- ✓ Robust Z-Axis stage
- ✓ Wafer mapping algorithm
- ✓ External light shielding enclosure
- ✓ Analysis tools and statistical reports

Test Items

- ✓ Electrical parameters:
 - Forward Voltage Measurement (Vf)
 - Reverse Breakdown Voltage Measurement (Vrb)
 - Reverse Leakage Current (I_r)
 - SCR detection
- ✓ Optical parameters:
 - Optical power (mw, lm, mcd)
 - Dominant Wavelength (Wd)
 - Peak Wavelength (Wp)
 - Full Width at Half Maximum (FWHM)
 - CIE_x - CCT - CRI

Hardwares

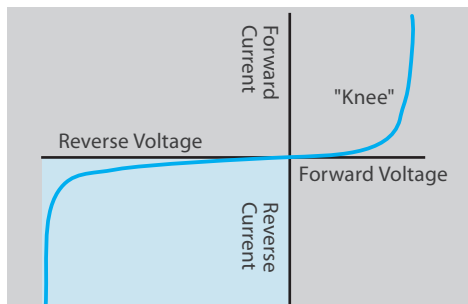
- ✓ Automatic LED wafer/Chip prober
- ✓ Electrical test module
- ✓ Optical test module
- ✓ Optional ESD test module



SPECIFICATIONS		
Model	58212-C	
Application		
Test Area	ψ 8 inch wafer	
Supported Device (Chuck is device selected)	Chip on wafer : 2", 4", 6", 8" Chip on tape : 2", 4", 6"	
Chuck Type	Lateral type, Vertical type, and Flip Chip type (Select one of them)	
Die Size	7 ~ 120 mil	
Pad Size	≥ 70 μm	
Electrical Parameter Measurements		
Power Range	≤ 20W	
Voltage	Source Range	± 10V / ± 100V / ± 200V
	Source Accuracy	0.05% + 0.03%F.S. / 0.05% + 0.03%F.S. / 0.05% + 0.03%F.S. *2
	Measure Range	± 10V / ± 100V / ± 200V
	Measure Accuracy	0.03% + 0.02%F.S. / 0.03% + 0.02%F.S. / 0.03% + 0.02%F.S. *2
Current	Source Range	± 20uA / ± 500uA / ± 20mA / ± 500mA / ± 2A
	Source Accuracy	0.08% + 0.06%F.S. / 0.08% + 0.05%F.S. / 0.08% + 0.05%F.S. / 0.3% + 0.1%F.S. / 0.3% + 0.3%F.S. *2
	Measure Range	± 20uA / ± 500uA / ± 20mA / ± 500mA / ± 2A
	Measure Accuracy	0.06% + 0.04%F.S. / 0.06% + 0.03%F.S. / 0.06% + 0.03%F.S. / 0.25% + 0.1%F.S. / 0.25% + 0.3%F.S. *1
Optical Measurements		
Spectrometer	Wavelength Rang	350 ~ 780 nm
	Wp Repeatability	± 0.5 nm
	Wd Repeatability (380~780nm)	± 0.3 nm
Optical Power	Repeatability	± 1%
Operation	Temperature	20° ~ 30°
Environment	Humidity	40% ~ 70%
Facility Requirements		
Machine Dimension	980 mmx1160mmx1500 mm (does not include monitor and signal)	
Power Requirement	Single phase, 220VAC ± 10%, 50/60Hz, 20A	
Input Air	-0.2 Mpa / ψ 6 mm	
Weight	750 kg	

Note *1 : Test condition is under point of sensing

Note *2 : The tested device is blue LED chip



LED I-V curve

LED Chip Level Tester

Model 58173-TC

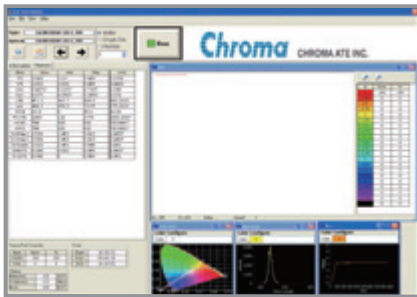
The LED Test System Model 58173-TC focuses on LED wafer/chip characteristics analysis and provides optimized test performance. Its test items include a variety of voltage/current output measurement, optical power measurement, and spectrum analysis. On measurement, several electrical and optical characteristics analysis can be achieved at a time within 25 ms, and its electrical measurement supports high-voltage LED and high-brightness LED applications.



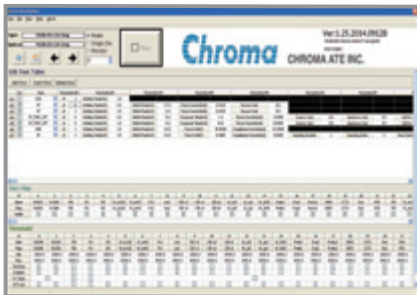
On system integration, the 58173-TC can easily integrate various Probers and Handlers for wafer probing and chip sorting. In addition, optional switch module allows test system to perform multi-channel and multi-chip measurements.

Key Features

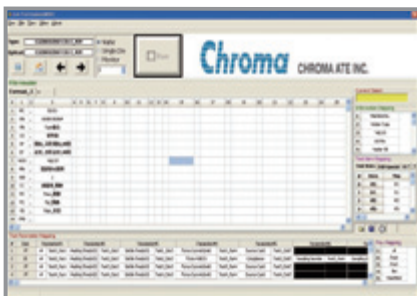
- ✓ High test speed: complete whole test within 25ms (selected test items)
- ✓ Super stable of temperature variation
- ✓ Support high voltage and high power LED test requirement
- ✓ Support multi-die test (option)
- ✓ Support ESD test (option)



Real-Time Production Information



Flexible Editable Test Parameters



Powerful Report File Editing

SPECIFICATIONS		
Model		58173-TC
Parameters		
Electrical Test Items	Forward Voltage(Vf), Reverse Leakage Current (Ir), Reverse Breakdown Voltage (Vrb), SCR	
Optical Test Items	Luminous Intensity (mcd), Lumen (lm), Radiant power (mw), Dominant Wavelength (Wd), Peak Wavelength (Wp), FWHM, CIE Chromaticity, CCT, CRI	
Electrical Parameter Measurements		
Power Range		≤ 20W, as the figure shows on next page
Voltage	Source Range	± 10V / ± 100V / ± 200V
	Source Accuracy	0.05% + 0.03%F.S. / 0.05% + 0.03%F.S. / 0.05% + 0.03%F.S. *1
	Measurement Range	± 10V / ± 100V / ± 200V
	Measurement Accuracy	0.03% + 0.02%F.S. / 0.03% + 0.02%F.S. / 0.03% + 0.02%F.S. *1
Current	Source Range	± 20uA / ± 500uA / ± 20mA / ± 500mA / ± 2°
	Source Accuracy	0.08% + 0.06%F.S. / 0.08% + 0.05%F.S. / 0.08% + 0.05%F.S. / 0.3% + 0.1%F.S. / 0.3% + 0.3%F.S *1
	Measurement Range	± 20uA / ± 500uA / ± 20mA / ± 500mA / ± 2°
	Measurement Accuracy	0.06% + 0.04%F.S. / 0.06% + 0.03%F.S. / 0.06% + 0.03%F.S. / 0.25% + 0.1%F.S. / 0.25% + 0.3%F.S. *1
Optical Measurements		
Spectrometer	Wavelength Rang	350 ~ 780 nm
	Detector Pixels	2048 pixels
Wp	Repeatability *2	± 0.5 nm
Wd (380~780nm)	Repeatability *2	± 0.2 nm
Radiant Flux (mW)	Repeatability *2	± 1%
Operation	Temperature	20° ~ 30°
Environment	Humidity	40% ~ 70%
Facility Requirements		
Power Requirement		800 VA
Dimensions (W x D x H)		Electrical Test Module : 486 mm x 462 mm x 110 mm Optical Test Module : 486 mm x 475 mm x 110 mm
Weight		15 kg

Note *1 : Test condition is under point of sensing

Note *2 : The tested device is blue LED chip

Ordering Information

58173-TC : LED Chip Level Tester

Optical Fiber : UV-VIS / 0.25m~2m / ψ100~600nm

Optical Attenuation Module

Solar Cell Photo Detector (optional)

Integrating Sphere (2"~4") (optional)

Industrial Personal Computer

Four channels Switching Box

LED Electrical Test Module

Model 58221-200-2

Chroma 58221-200-2 is a module specially designed to test the electrical features of LED in full range. It has all functions required for testing the LED electrical features. The 58221-200-2 supplies high accuracy current source up to $\pm 200V/\pm 120mA$ for High voltage (HV) and up to $\pm 10V/\pm 2A$ for High Power (HP). Besides the standalone operation the 58222-200-2 is featured in, the USB interface and other integrated design can also be applied for synchronous measurement.

H.V. **H.P.**

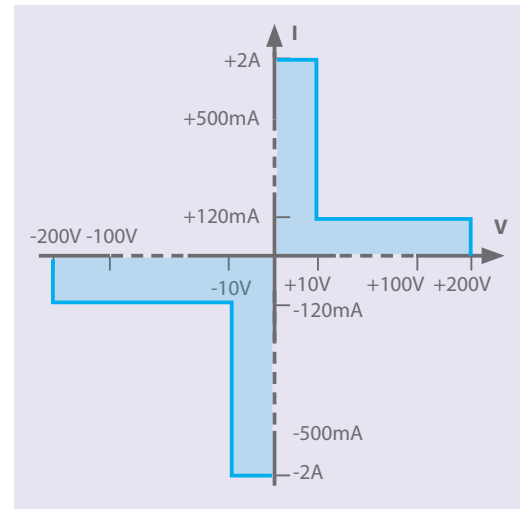


Key Features

- ✓ Focuses on LED test application
- ✓ Cover High Voltage (HV) and High Power (HP) LED test requirement
- ✓ Build-in hardware sequencer
- ✓ Build-in program memory and data memory
- ✓ Support LED SCR characteristic detect function

Test items

- ✓ Forward voltage (Vf)
- ✓ Reverse breakdown voltage (Vrb) Leakage (Ir)
- ✓ LIV
- ✓ I-V characterization



Wide voltage/current test range

SPECIFICATIONS				
Model	58221-200-2			
Current Source Accuracy				
Range	Programming Resolution	Source Accuracy 23°C ± 5°C ± (Reading + Range)	Default Measurement Resolution	Measurement Accuracy 23°C ± 5°C ± (Reading + Range)
± 20 μA	1nA	0.05% + 0.04%	1nA	0.05% + 0.04%
± 500 μA	50nA	0.05% + 0.04%	50nA	0.05% + 0.04%
± 20mA	1 μA	0.05% + 0.04%	1 μA	0.05% + 0.04%
± 500mA	50 μA	0.08% + 0.04%	50 μA	0.08% + 0.04%
± 2A	100 μA	0.05% + 0.1% (≥0.1A range) 0.1% + 0.3% (<0.1A range)	100 μA	0.05% + 0.1% (≥0.1A range) 0.08% + 0.1% (<0.1A range)
Voltage Source Accuracy				
Range	Programming Resolution	Source Accuracy 23°C ± 5°C ± (Reading + Range)	Default Measurement Resolution	Measurement Accuracy 23°C ± 5°C ± (Reading + Range)
± 10V	1mV	0.03% + 0.02%	1mV	0.03% + 0.02%
± 100V	10mV	0.03% + 0.02%	10mV	0.03% + 0.02%
± 200V	10mV	0.03% + 0.02%	10mV	0.03% + 0.02%
General Specification				
Interface	USB/Stand alone			
Trigger	Available			
RAM (16 bits)	16M			
Operatoin Environment	0°C~5°C (32°F~122°F) ; Humidity : < 70% R.H. Non-condensing			
Max. Power Consumption (VA)	120VA			
Dimensions (WxHxD)	432x110x432 mm			
Weight (kg)	10			



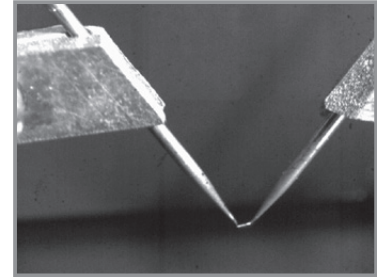
Model 58154 Series

Chroma 58154 series ESD (Electrostatic Discharge) Test Systems are PCI controlled module to simulate electrostatic discharge pulse during electronic device testing. The 58154 series offer both ANSI/ESDA/JEDEC JS-001-2014-Human Body Model and ANSI/ESD STM 5.2-2012-Machine Model. The user friendly software offers programmable and flexible features, such as sampling test on a wafer, ESD model, ESD pulse polarity, ESD pulse interval in a sequence, and automatic testing function.



The 58154 series includes a control module and a pulse output external box. High voltage power supply unit (PSU) and pulse shaping circuits provide the ESD standards compliant pulse waveform.

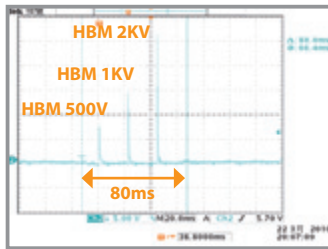
The 58154 series offer a flexible and total ESD test solution to customers. Furthermore, the ESD pulse is generally applied to the device under test before measuring device electric parameters and the 58154 series can be perfectly integrated with Chroma 58212-C to provide a total solution in production line.



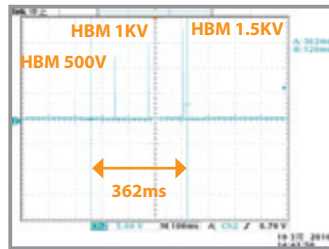
ESD Test on LED chip

Key Features

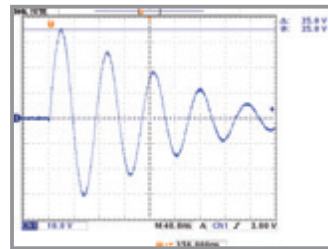
- ✓ Two models ESD pulse generation : human body model and machine model
- ✓ Programmable auto test : pulse delay, cycle and polarity are programmable
- ✓ Resolution (58154) : 5V per-step for machine model, 20V per-step for human body model
- ✓ Resolution (58154-B) : 10V per-step for machine model, 30V per-step for human body model
- ✓ Resolution (58154-C) : 10V per-step for machine model, 30V per-step for human body model
- ✓ Diversity control interface : PCI DIO card
- ✓ Up to 8000V (58154-C)



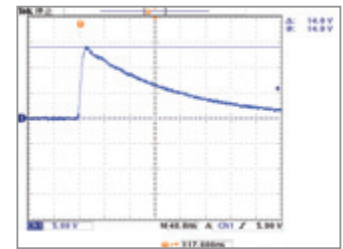
New Function and improvement - 3 HBM pulses within 80 ms



Traditional way - 3 HBM pulses within 362 ms



Machine Model waveform



Human Body Model waveform

SPECIFICATIONS			
Model	58154	58154-B	58154-C
Parameter	Value		
ESD Mode	Machine Model / Human body model		
Pulse Voltage	Machine model: 50V to 400V ± 5V Human body model: 250V to 4KV ± 20V	Machine model: 100V to 800V ± 10V Human body model: 250V to 6KV ± 30V	Machine model: 100V to 800V ± 10V Human body model: 250V to 8KV ± 30V
ESD Specification *1 *2	Machine model reference on STM5.2-2012 ; Human body model reference on ANSI/ESDA/JEDEC JS-001-2014		
Pulse Interval	20 ms to 1 s (User definable)		
Pulse Repetition	Single or multiple		
Pulse Polarity	Positive or negative (software control)		
AC Input	100 to 240V, 47 to 63 Hz		
Dimensions	434.6mm(W) x 97.7mm(H) x 306.8mm(D)		434.6mm(W) x 97.7mm(H) x 450mm(D)
Weight	12 kg		

Pattern No. : I311648, I398655, ZL 2009 2 0148342.2

Pattern Name : Discharge and remote feedback integrated testing system

Note*1 : The test condition is under Chroma's probe tips

Note*2 : The accuracy of Chroma 58154 may vary in customer's setup conditions. To fix this problem, ESD tester needs to be tuned the value of the impedance to minimized waveform distortion, or customers provide their setup information in advance and Chroma tunes ESD testers before shipment to fit customer's test method.

LED Burn-in Tester

Model 58266

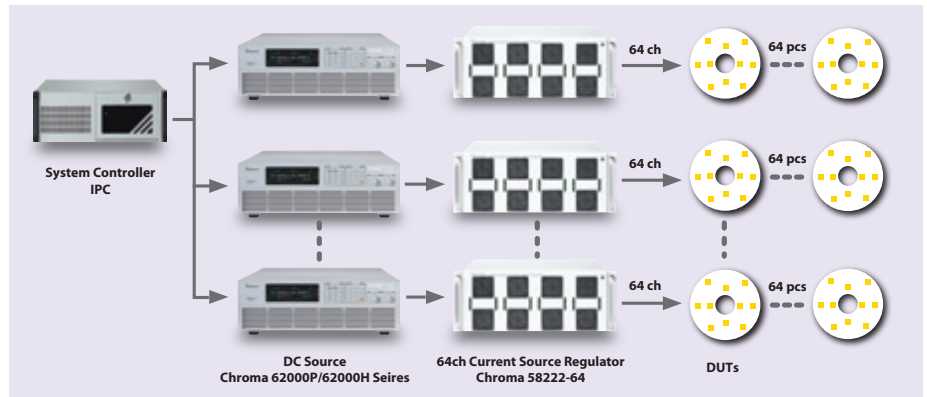
Chroma 58266 is a LED Burn-in Tester that each channel can offer a constant current up to 500mA but also has 0~400V voltage measurement function. For product application, various programmable power supplies can be applied for multi-channel constant current output and voltage measurement. The user can integrate several power supplies based on the demands of channels and current for multi-channel test.

Key Features

- ✓ Flexible channels output: 32/64/128 channels
- ✓ Each channel can offer up to 500mA /400V
- ✓ Each channel can parallel connection for high current requirement. Ex: 2-ch: 1A, 4-ch: 2A
- ✓ High accuracy of current output and voltage measurement

System Architecture

- ✓ DUT: single LED, LED array, LED light bar or LED module
- ✓ Support channels: 64 ch
- ✓ Force Current: Max. 500mA per-channel
- ✓ Support parallel connection: Ex: 2-ch: 1A
- ✓ Voltage measurement: Max. 400V



CONFIGURATION			
Programmable DC Power Supply	LED Burn-in Tester	Force	Measure
		I range	V Range
Model 62012P-40-12 40V/120A/1200W	Model 58266	500mA	30V
Model 62012P-100-50 100V/50A/1200W	Model 58266	400mA	35V
Model 62024P-80-60 80V/60A/2400W	Model 58266	500mA	32V
Model 62024P-100-50 100V/50A/2400W	Model 58266	170mA	95V
Model 62024P-600-8 600V/8A/2400W	Model 58266	500mA	70V
Model 62050P-100-100 100V/100A/5000W	Model 58266	440mA	75V
Model 62050H-450 450V/34A/15KW (380V/3 Φ 4W)	Model 58266	500mA	70V
		350mA	95V
		110mA	300V
		80mA	400V
		500mA	95V
		500mA	400V

SPECIFICATIONS				
Model	58266			
Voltage Accuracy (23°C ± 5°C)				
Range	0~4V	0~40V	0~400V	0~400V
Default Measurement Resolution	1mV	10mV	100mV	100mV
Measure Accuracy ±(%rdg. + offset)	0.2%+5mV	0.2%+50mV	0.3%+500mV	0.3%+500mV
Current Accuracy (23°C ± 5°C)				
Range	10 μA	1mA	100mA	500mA
Programming Resolution	5nA	500nA	50 μA	200 μA
Source Accuracy ±(%rdg. + offset)	0.1%+20nA	0.1%+300nA	0.1%+200 μA	0.2%+1mA
Temperature Coefficient	10~18°C & 28~50°C ; ±(0.5 × accuracy specification)/°C			
Max. Voltage Difference of all Channel	10V @ 500mA ; 50V @ 100mA ; 100V @ 50mA			
Operation Environment	Temperature : 10~50°C ; Humidity : 10~70%RH			
Storage Environment	Temperature : -20~70°C ; Humidity : 5~95%RH			

Packaged LED Test Sorter & Tapper

Model 58270/58280

With rise of Green Energy, LED, with its high energy efficiency and reliability, has played important role in energy saving. Despite LED light, many modern electronics applications are also increasingly using LED because of its energy saving feature, such as backlight of LCD monitor, TV and mobile devices. This results continue growth of demand in, not only volume but also new innovations in packaged LED.

LED tester/sorter is equipment used to test and sort (white) packaged LEDs then sort them into different specs that are defined by customers. However, with new type of LED packaging technologies, primarily CSP (Chip Scale Packing), they brings new challenges to the conventional packaged LED Tester/Sorter design.

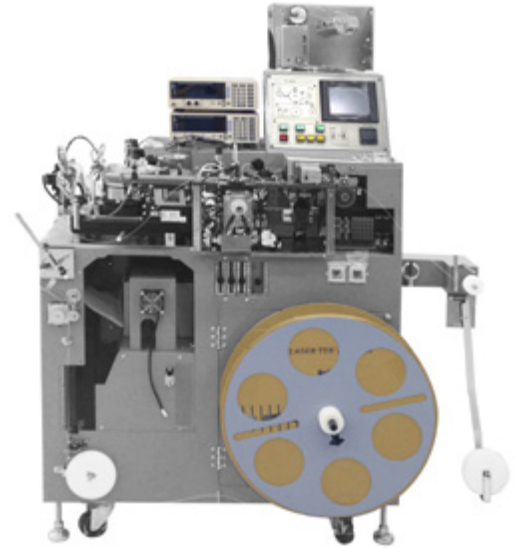
Unlike conventional white packaged LEDs which package Blue LED chips into plastic mold with metal lead frame and dispense phosphor to give desired white color, CSP LED dispense the phosphor directly on Flip-Chip type of LED wafer therefore, no additional packaging process is need. Plus, removing the plastic mold, it provides wider light emitting angle which highly desirable for backlight application. However, the CSP LED and its unique structure make probing lot difficult then conventional packaged LED. Also, lacking of plastic mold and lead frame, it is structurally more fragile than conventional packaged LED.

Chroma 58270 Packaged LED Tester/ Sorter was designed to meet all of the challenges brought by conventional and new type of CSP LED. Bin numbers can be custom-designed up to 256 bins. Innovative probing mechanism provides highly repetitive probing quality; Specially designed low stress bowl feeder guarantees minimum chipped chips; Optional optical inspection secure no fail devices go to pass bins. to provide high speed, high accurate yet high yield of testing & sorting solution.

For some manufacturing process alignments, Packaged LED Tester/Sorter may require to combine with Tapper so the main bin can be tapped into reel directly. Chroma 58280 is designed to combine LED Tester, Sorter and Tapper into one integrated system with all features available in Chroma 58270 (except bin numbers).

Key Features

- ✓ High testing/sorting speed : Up to 42k/48k LEDs per hour (58270)
- ✓ Fully configurable test stations
- ✓ Complete optical and electrical test functions including :
CIE x,y, CCT, mW, Lumen, Vf, Ir etc.
- ✓ Auto polarity detection and orientation correction
- ✓ High accurate SMU and temperature controlled spectrometer provide highest measurement repeatability under any environment.
- ✓ Super low stress bowl feeder provides highest yield
- ✓ Optional optical inspection secures no chipped chips or chips with stains go into pass bins
- ✓ Up to 512/36 (58270/58280) customer definable bins
- ✓ Packaged type supported : 1313 CSP, 1616 CSP, 0603, 0606, 0608, 1005, 1608, 1612, 1615, 2012, 3010, 3014, 3030, 3216, 3303, 3528, 4014, 5050, 5630, 7020, 7030, 8520 ; other types available upon request
- ✓ High speed tapping (58280)
- ✓ Versatile graphical user interface



Tapper 58280



Packaged LED Tester/ Sorter 58270



LED Packaged Level Tester 58174

Model	58270	58280
Throughput (UPH)	up to 48k (0603) *1	up to 48k (0603) *1
LED Type	1313 CSP, 1616 CSP, 0603, 0606, 0608, 1005, 1608, 1612, 1615, 2012, 3010, 3014, 3030, 3216, 3303, 3528, 4014, 5050, 5630, 7020, 7030, 8520 ; other types available upon request	
Bin Number	up to 256	up to 37
Optical Inspection	optional	optional
LED Tester	Chroma 58174 LED Tester	Chroma 58174 LED Tester
LED Reel Type	void	carrier tape
Dimension (HxWxD)	1,680mm x 850mm x 1,400mm	1,800mm x 1,000mm x 1,500mm
Weight	approx. 450 kg	approx. 300 kg
Input Power	220V; 50/60Hz	
Environment	18~28°C ; < 70%RH	
Utility Requirement	Air pressure: >4~≤5kg/cm ² Vacuum Input: 20~60 kpa	Air pressure: >4~≤5kg/cm ² Vacuum Input: 20~60 kpa

Note *1 : Actual UPH may vary based on distribution of the bins.

Note *2 : The tested device is blue LED chip

SPECIFICATIONS		
Model	58174	
Parameters		
Electrical Test Items	Forward Voltage(Vf), Reverse Leakage Current (Ir), Reverse Breakdown Voltage (Vrb), SCR	
Optical Test Items	Luminous Intensity (mcd), Lumen (lm), Radiant power (mw), Dominant Wavelength (Wd), Peak Wavelength (Wp), FWHM, CIE Chromaticity, CCT, CRI	
Electrical Parameter Measurements		
Power Range	≤ 20W	
Voltage	Source Range	± 10V / ± 100V / ± 200V
	Source Accuracy	0.05% + 0.03%F.S. / 0.05% + 0.03%F.S. / 0.05% + 0.03%F.S. *1
	Measurement Range	± 10V / ± 100V / ± 200V
	Measurement Accuracy	0.03% + 0.02%F.S. / 0.03% + 0.02%F.S. / 0.03% + 0.02%F.S. *1
Current	Source Range	± 20uA / ± 500uA / ± 20mA / ± 500mA / ± 2°
	Source Accuracy	0.08% + 0.06%F.S. / 0.08% + 0.05%F.S. / 0.08% + 0.05%F.S. / 0.3% + 0.1%F.S. / 0.3% + 0.3%F.S *1
	Measurement Range	± 20uA / ± 500uA / ± 20mA / ± 500mA / ± 2°
	Measurement Accuracy	0.06% + 0.04%F.S. / 0.06% + 0.03%F.S. / 0.06% + 0.03%F.S. / 0.25% + 0.1%F.S. / 0.25% + 0.3%F.S. *1
Optical Measurements		
Spectrometer	Wavelength Rang	350 ~ 780 nm
	Detector Pixels	2048 pixels
CIExy	Repeatability	± 0.0015
Wp	Repeatability	± 0.5 nm
Wd (380~780nm)	Repeatability	± 0.2 nm
Radiant Flux (mW)	Repeatability	± 1%

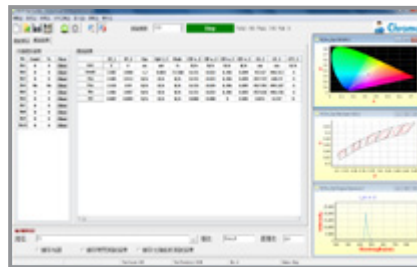
Note *1: Test condition is under point of sensing

Note *2 : The tested device is cool white LED

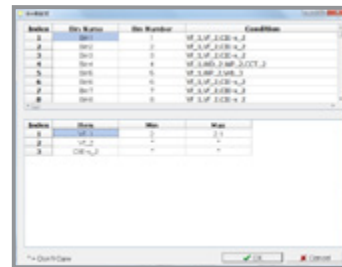
Note *3 : The tested device is blue LED chip



Flexible Editable Test Parameters



Real-Time Production Information



Powerful Report File Editing

LED Light Bar Test System

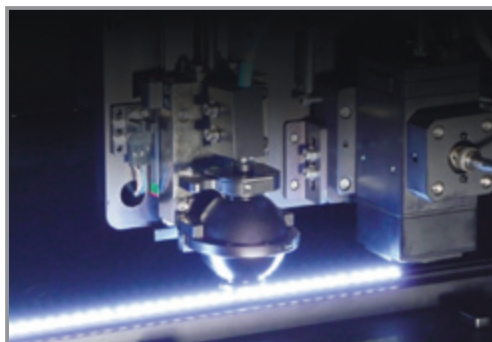
Model 58182

Chroma 58182 LED Light Bar Test System is a fully automatic test system able to measure the top-view/side-view light bar uniformity composed of white light or RGB LED. With image recognition function, it can accurately capture the location of LED and identify the center of LED under the measurement. With automatic mechanical and optical measurement function, the 58182 can perform extremely accurate optical and electrical measurement.

The 58182 integrates image recognition function, automatic mechanical and optical measurement. It can not only improve the yield rate by sifting out the defect products, but also reduce the product verification time and development cost. In addition, the 58182 has a flexible measurement platform to adapt different type of top-view / side-view LED light bar measurement, and friendly user interface to reduce user's learning time. Consequently, the 58182 is the best choice for testing top-view/side-view light bar.

Key Features

- ☑ Measure the top-view/side-view light bar uniformity composed of white light
- ☑ Equipped with image recognition function to capture the LED location accurately
- ☑ Excellent optical performance
- ☑ ESD damaged sorting function
- ☑ FPC/PCB light bar adaptability



CIE127 Partial Flux Measurement Module



CIE127 Condition B measurement Module

SPECIFICATIONS				
Model		58182		
Optical Module		CIE 127 condition B optical tube or Partial flux measurement module		
Average Intensive (mcd)	Range	100~10000mcd		
	Accuracy	± 5%		
	Repeatability	± 2%		
CIE x, y	Accuracy	± 0.004		
	Repeatability	± 0.002		
Spectrometer	Wavelength Range	380~780nm		
	Optical resolution	2nm		
	A/D	16 bits		
Light Bar length		600mm		
Offer Channels		20 X 12 Ch		
Power Supply	Voltage	0~200V	0~60V	0~300V
	Current	10uA~5mA	1mA~2A	40mA~2A
	Voltage accuracy	0.3%+0.1%F.S	0.01%+10mV	0.05%+0.05%F.S
	Current accuracy	0.3%+0.1%F.S	0.01%+1mA	0.03%+40mA
Data output	Format	Excel (*.csv)		
	Output items	mcd, CIEx, CIEy		
XY moving range		600x250mm		
Dimension		1300 (D) × 2360 (W) × 1815 (H)mm		

LED Light Bar Electrical Test System

Model 58183

Chroma 58183 is a PC base test system for LED light bar electrical test. In hardware design, Chroma 58183 not only offers an accurately current (10uA~5mA) to test LED electrical features but also can integrate an extra high power supply for high current test. Otherwise, Chroma 58183 offers multi-channels test function. It is widely used in many application. In LED light bar manufactory, 58183 can test more 10 pieces Light bar at the one time. In LED backlight manufactory, 58183 can test 4 pieces LED backlight via a 4 channels control box. To sum up, 58183 is a very strong and powerful tool for LED light bar and LED backlight manufactories.

Key Features

- ☑ Integrating customer's extened power supply
- ☑ PC base design
- ☑ Support multi- channels test
- ☑ Using general DUT adapter to offer test application widely
- ☑ Software support authority management



SPECIFICATIONS		
Model	58183	
Voltage		
Output Range	10V / 100V / 200V	
Source Accuracy *1	0.05% + 0.03% F.S	
Measure Accuracy *1	0.03% + 0.02% F.S	
Current		
Output Range	20uA/500uA/20mA/500mA	
Source Accuracy *1	0.1% + 0.1% F.S	
Measure Accuracy *1	0.1% + 0.1% F.S	
Applicative Type	Top/side-view LED light bar	
Dimensions	IPC : 451 x 426.5 x 177 Relay Box : 276 x 430 x 102 Chroma 58221 : 432 x 432 x 110 (D x W x H mm)	
Weights	Total 27 Kg (IPC 12Kg, Relay Box 5Kg, Chroma 58221-200-2 10Kg)	
Relay Box (Not in live wire)		
	Ch1~24	Ch25~32
Switch voltage	200VDC	300VDC
Carry current	300mA	600mA
Life expectancy of mechanical	10^6	10^6
Power IN		
IPC, Chroma 58221-200-2	90-240VAC	
Relay Box	110 / 220V,50~60Hz, 2A	
Others		
General purpose relay	32 Channels	
Operation environment	Temperature:10~40°C Humidity:10%~70%	

Ordering Information

58183 : LED Light Bar Electrical Test System

58221-200-2 : LED Electrical Test Module

Relay Box

Industrial Personal Computer

LED Lighting Test System (For Laboratory)

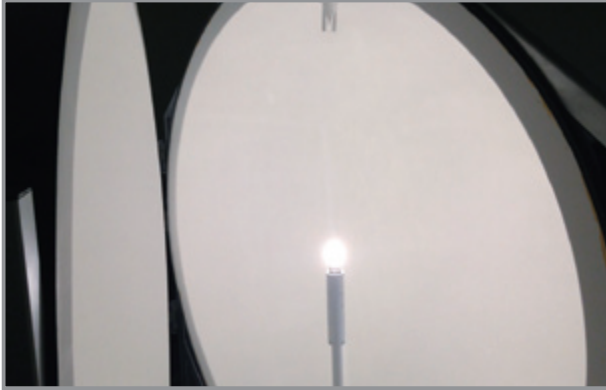
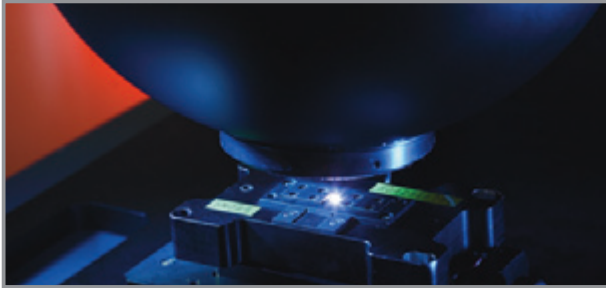
Model 58158

Chroma 58158 LED Lighting Test System, compliances the AC LED Device National Standard, has integrated Chroma's Power Electronics Test Equipment - Programmable AC Power Source and Digital Power Meter to offer users a real AC environment for measuring AC LED.

Furthermore, the 58158 also integrates Chroma DC Power Supplies with the flexible optical test platform which equips with integrating sphere, photo detector, and etc.. Users can measure optical and electrical parameters of AC/DC LED through a friendly software interface.

Key Features

- ✓ Simulate the real AC test condition and environment
- ✓ Integrate AC, DC, and optical features test to one platform
- ✓ Support DC test for AC LED
- ✓ Support dual-optical test module in one platform (Integrating sphere or average intensity) (optional)
- ✓ Support AC /DC LIV analysis
- ✓ Offer standard light source for calibration



For Laboratory Test

Optional Integrating Spheres



SPECIFICATIONS (50 cm Integrating Sphere)			
Model		58158	
Measurement Items			
Optical Measurement Items		Lumens (lm), CIE(x,y), CIE(u',v'), CCT, CRI	
Electrical Measurement Items		Frequency, Real power P, power factor PF, THD (Option), Vf (Option)	
Optical Measurement			
Photo Detector	Wavelength Range	380~780nm	
	Lumens Range *1	<5,000 lm (>5K lm optional)	
Spectrometer	Detector Type	2048 Pixels Linear CCD array (optional)	
	Optical Fiber Connector	SMA 905	
Lumen accuracy		± 5%	
CIEy accuracy		± 0.004	
Lumen Repeatability *2		± 0.5%	
CIEy Repeatability *2		± 0.0005	
Electrical AC Source			
Output Rating-AC		500VA	
Voltage	Range/Phase	150V/300V/Auto	
	Accuracy	0.2%+0.2%F.S.	
	Resolution	0.1V	
	Line Regulation	0.10%	
Max.Current / Phase	Load Regulation	0.20%	
	RMS	4A/2A (150V/300V)	
	peak	24A/12A (150V/300V)	
Electrical AC Meter			
Power	Range (W)	1.5W~1KW (Model 66201) ; 1.5W~10KW (Model 66202)	
	Power Factor Accuracy *3	0.006+(0.003/PF)KHz	
Harmonic	Range	2~50 order	
DC Measurement (Optional)			
DC Power Supply	Output Voltage	0~64V (> 64V optional)	
	Output Current	0~3A (> 3A Optional)	
	Ripple and Noise	1400 uVrms & 14 mVp-p / < 1mA	
	Line Regulation	0.01% +4mV / 0.01% + 300 μ A	
	Load Regulation	< 6mV / 0.01% + 300 μ A	
	Program Accuracy	0.02% + 10mV / 0.01%+1mA	
	Read back Accuracy	0.02% + 10mV / 0.01%+1mA	
Others			
Dimension (H x W x D)		1081 x 532 x 700 mm	
Weight		100k g	
Power Consumption		300 W	
Operating		100~240V VAC 50/60HZ	
Software Support DC Source			
Chroma 6200P-300-8, Chroma 11200 (650V), Chroma 11200 (800V), Keithley 24XX Series			

Notes *1: 20 inch Integrating Sphere

Notes *2 : The unit under test is 10W halogen lamp

Notes *3 : The PF spec. applies only when the signals are higher then 50% of the selected voltage and current ranges

ORDERING INFORMATION

Integrating sphere	50cm	1m	2m
Luminaire	small lamp, bulb, MR-16	middle lamp, 2 feet T8/T5 tube	large lamp, 4 feet T8/T5 tube, street light
Application	laboratory	laboratory	laboratory

Note : Customization for 3m integrating sphere

LED Lighting In-line Test System (For Production)

Model 58158-SC

The design concept of Chroma LED high speed measurement module is to combine several large size detectors and add up the luminous flux obtained by each detector to calculate the total flux of LED light. This design not only overcomes the shortcoming of previous inconvenient measurement for total flux by conventional integrating sphere, it also implements the inline test on production line. Chroma is able to provide the customer a fully automatic production line that covers both quality and productivity.

Key Features

- ☑ Mass production application: LED lamp, LED bulb, LED bar, LED streetlight, and other luminaries
- ☑ Less error comparing to integrating sphere measurement
- ☑ High speed test and flicker measurement
- ☑ Provide standard light source for calibration which is international standard traceable
- ☑ Thermal control fixture adaptable (option)

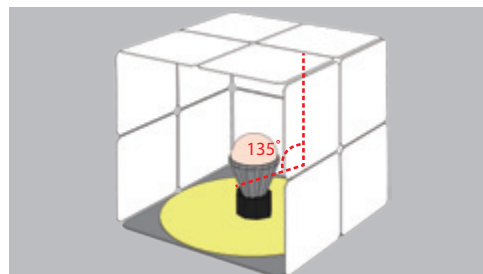
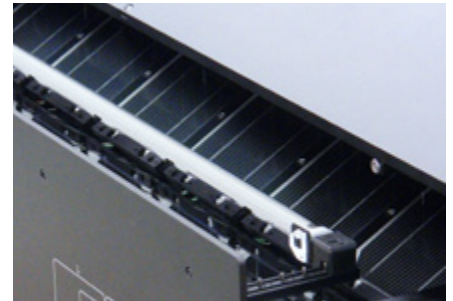
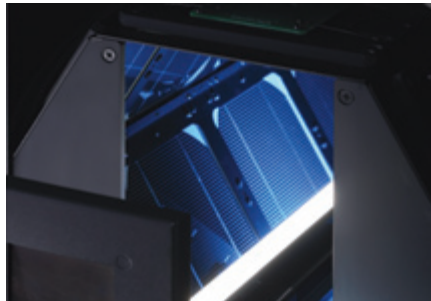
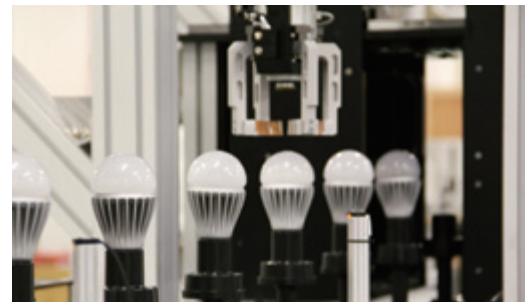
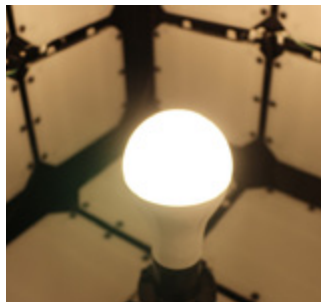
Test Items

- ☑ Optical power characteristics : Lm, lm/w, LED operating frequency (Flicker)
- ☑ Color characteristics : CIE_{x,y}, Duv, CIE_{u',v'}, CCT, CRI
- ☑ Power characteristics : AC mode : Power Factor (PF), Irms, Vrms, THD
DC mode : Forward voltage

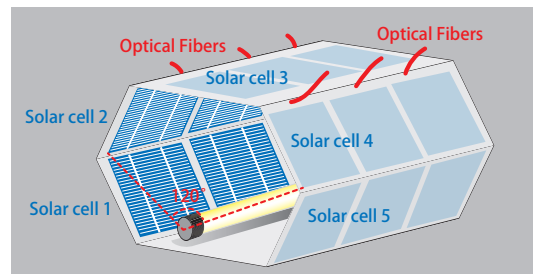


Instruments

Solar Cell Modules



Solar Cell Module for Omnidirectional lamp



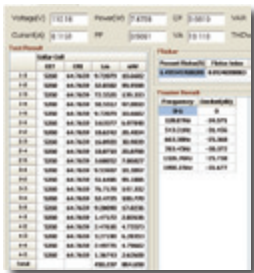
Solar Cell Module for JEL 801 LED Tube

SPECIFICATIONS		
Model		58158-SC
Measurement Items		
Optical Measurement Items		Lumens (lm), CIE(x,y), CIE(u',v'), CCT, CRI
Electrical Measurement Items		Frequency, Real power P, power factor PF, THD (Option), Vf (Option)
Optical Measurement		
Photo Detector	Wavelength Range	380~780nm
	Lumens Range	<5,000 lm (>5K lm optional)
Spectrometer	Detector Type	2048 Pixels Linear CCD array
	Optical Fiber Connector	SMA 905
Lumen measurement Repeatability		± 0.5%
CIExy Repeatability *1		± 0.0005
CCT Repeatability		± 5K
CRI Repeatability		± 1
Electrical AC Source		
Output Rating-AC		500VA
Voltage	Range/Phase	150V/300V/Auto
	Accuracy	0.2%+0.2%F.S.
	Resolution	0.1V
	Line Regulation	0.10%
	Load Regulation	0.20%
Max.Current / Phase	RMS	4A/2A (150V/300V)
	peak	24A/12A (150V/300V)
Electrical AC Meter		
Power	Range (W)	1.5W~1KW (Model 66201) ; 1.5W~10KW (Model 66202)
	Power Factor Accuracy *2	0.006+(0.003/PF)KHz
Harmonic	Range	2~50 order
DC Measurement (Optional)		
DC Power Supply	Output Voltage	0~64V (> 64V optional)
	Output Current	0~3A (> 3A Optional)
	Ripple and Noise	1400 uVrms & 14 mVp-p / < 1mA
	Line Regulation	0.01% +4mV / 0.01% + 300 μ A
	Load Regulation	< 6mV / 0.01% + 300 μ A
	Program Accuracy	0.02% + 10mV / 0.01%+1mA
Others		
Dimension (H x W x D)		1081 x 532 x 700 mm
Weight		100k g
Power Consumption		300 W
Operating		100~240V VAC 50/60HZ
Software Support DC Source		
Chroma 58221-200-2, Chroma 6200P-300-8, Chroma 11200 (650V), Chroma 11200 (800V), Keithley 24XX Series		

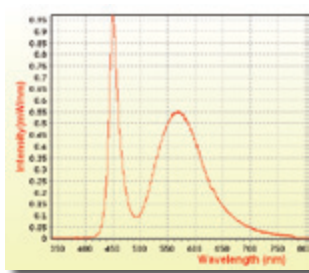
Notes *1 : The unit under test is 10W halogen lamp

Notes *2 : The PF spec. applies only when the signals are higher then 50% of the selected voltage and current ranges

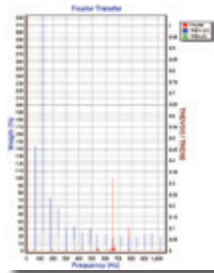
Analysis Tools



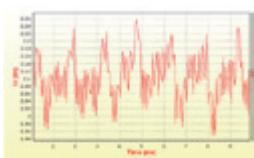
Power Analysis :
Im, Im/W, PF, Power



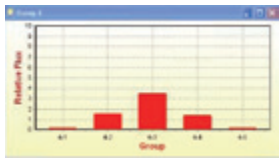
LED Spectrum Analysis :
CCT, CRI, Duv



THD Analysis



Flicker Analysis



Flicker Analysis



**HEADQUARTERS
CHROMA ATE INC.**

66 Huaya 1st Road, Guishan, Taoyuan 33383, Taiwan
T +886-3-327-9999
F +886-3-327-8898
info@chromaate.com
www.chromaate.com

**CHINA
CHROMA ATE (SUZHOU) CO., LTD.**

Building 7, ShiShan Industrial Gallery,
No. 855, Zhu Jiang Rd., SuzhouNew District,
Jiang Su, China
T +86-512-6824-5425
F +86-512-6824-0732
www.chroma.com.cn

**JAPAN
CHROMA JAPAN CORP.**

888 Nippa-cho, Kouhoku-ku, Yokohama-shi,
Kanagawa, 223-0057 Japan
T +81-45-542-1118
F +81-45-542-1080
info@chroma.co.jp
www.chroma.co.jp

**U.S.A.
CHROMA ATE INC. (U.S.A.)**

7 Chrysler Irvine, CA 92618
T +1-949-421-0355
F +1-949-421-0353
Toll Free +1-800-478-2026
info@chromaus.com
www.chromaus.com

CHROMA SYSTEMS SOLUTIONS, INC.

19772 Pauling, Foothill Ranch, CA 92610
T +1-949-600-6400
F +1-949-600-6401
sales@chromausa.com
www.chromausa.com

**EUROPE
CHROMA ATE EUROPE B.V.**

Morsestraat 32, 6716 AH Ede, The Netherlands
T +31-318-648282
F +31-318-648288
sales@chromaeu.com
www.chromaeu.com