

# Overview of SERIC LTD.



◆ Head quarters

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104-0042 JAAPAN  
TEL+81-3-3555-2261 FAX+81-3-3555-2262

◆ Technical center

334-1, Shichiza-cho, 7-chome, Koshigaya-si  
Saitama 343-0851 JAPAN  
TEL+81-48-969-2155 FAX+81-48-969-2166



1. Corporate profile
2. Product profile

What is SERIC LTD. meaning. ?

Sato Engineering Research Industry Co .,LTD.

## Products line

- Artificial solar illumination lamp
- Solar simulator
- Weathering test equipment  
and others.



# General information

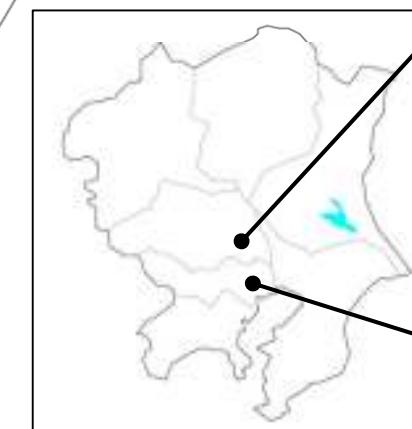
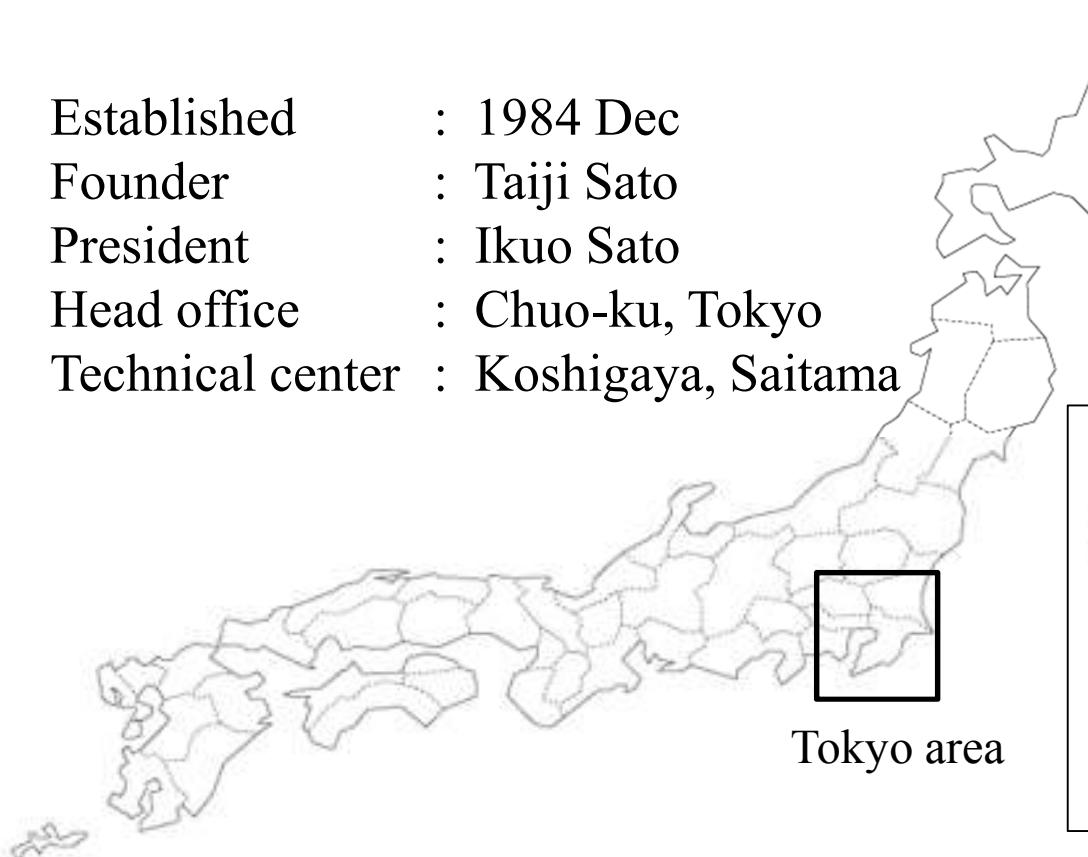
Established : 1984 Dec

Founder : Taiji Sato

President : Ikuo Sato

Head office : Chuo-ku, Tokyo

Technical center : Koshigaya, Saitama



Technical  
center



Head office

# Corporate history

**1984 Dec** : Established as R&D type company of variety equipment

**1987 Apr** : Artificial solar illumination lamp XC-100 was developed and released

**1998 Jan** : The first Solar simulator was developed and released

**2000 Jan** : Technical center was launched in Koshigaya

**2001 July** : SOLAX 7BM (Medical artificial solar illumination lamp) was developed and released

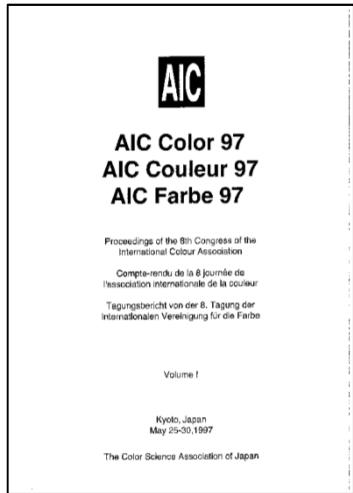
**2001 July** : SERIC21 (Dental artificial solar illumination lamp) was developed and released

# Award history

- 1992 Apr** : The founder Taiji Sato was awarded The Director General of Science and Technology Agency award according to his outstanding R&D value.
- 1996 May** : The founder Taiji Sato was awarded The Medal with Yellow Ribbon from Japan prime minister.
- 2009 Apr** : The founder Taiji Satoh was awarded The Higashikuninomiya memorial award from Royal family Japan.

# ACADEMIC ARTICLES

## Of SOLAX



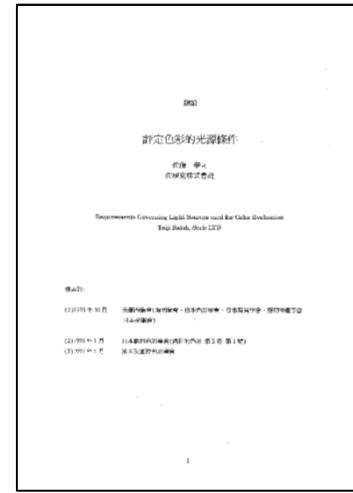
[..\..\..\..\scan\AIC COLOR 97 \(Kyoto, Japan English\).pdf](..\..\..\..\scan\AIC COLOR 97 (Kyoto, Japan English).pdf)

English



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Japanese



<..\..\..\..\scan\Chinese edition.pdf>

Chinese

1. Corporate profile
2. Product profile

# Product line



SOLAX / XELIOS



Solar Simulator

# What is XELIOS?

# XELIOS is . . .

- Having over 25 years history from released.
- Able to irradiate very close to the natural sunlight.
- having several types of optical filter.
- Having 2 basic series, 100W and 500W



# XELIOS's 3 Features

1. XELIOS is able to irradiate very close to the natural sunlight between 10AM to 2 PM.
2. XELIOS is DC light. The light beam is not flickered, so users do not feel tired their eyes.
3. XELIOS does not deteriorate its characteristics and capabilities.

# XELIOS

## SPECIFICATION

### XE-100 Series



items / Purpose	Color evaluation and inspection		Health care & Biotech		Photovoltaic R&D					
Model	XE-100A	XE-100AF	XE-100B	XE-100BF	XE-100E	XE-100EF				
Filter	Transparence	Frost	Transparence	Frost	Transparence	Frost				
Utility	AC100-120V, 1.8A / AC200-240V 1.0A 50/60Hz									
Power	100W									
Direction of irradiance	From downward to horizontal ( Not for upward use)									
Luminous intensity, Angle of beam spread	3000cd 48 °	1600cd 60 °	3000cd 48 °	1600cd 60 °	3000cd 48 °	1600cd 60 °				
Color rendering index	98		96		96					
Spectral distribution	370~780nm		300~780nm		350~2500nm					
Color temperature	Approx 5500K									
Operating temperature	-10-30 DegC									
Weight	Approx 2.5Kg									

### XE-500 Series



items / Purpose	Color evaluation and inspection		Health care & Biotech		Photovoltaic R&D					
Model	XE-500A	XE-500AF	XE-500B	XE-500BF	XE-500E	XE-500EF				
Filter	Transparence	Frost	Transparence	Frost	Transparence	Frost				
Utility	AC100-120V, 8.0A / AC200-240V 4.0A 50/60Hz									
Power	500W									
Direction of irradiance	From downward to horizontal ( Not for upward use)									
Luminous intensity, Angle of beam spread	26000cd 60 °	12600cd 72 °	26000cd 60 °	12600cd 72 °	26000cd 60 °	12600cd 72 °				
Color rendering index	98		96		96					
Spectral distribution	370~780nm		300~780nm		350~2500nm					
Color temperature	Approx 5500K									
Operating temperature	-10-30 DegC									
Weight	Lamp house Approx 4.2Kg + Power supply Approx 3.1Kg									

# Our Delivery Records

## Automotive field

Toyota, Nissan, Honda, Mitsubishi, Mazda, Subaru, Isuzu, Suzuki, Daihatsu, Hyundai, Lotus, etc

## Electronics field

Sony, Panasonic, NEC, Samsung, Hitachi, Canon, Mitsubishi, Eriksson, Nokia, Intel, Nikon, etc

## Paint field

Nippon Paint, Kansai Paint, Du Pond, BASF, PPG, Bee Chemical, DIC, etc

## Cosmetics field

Shiseido, L'oreal, Kose, Kao, Maxfactor, Wella, Fancl, Lion, etc

## Medical and Chemical field

Takeda, Sumitomo Chemical, Mitsubishi Chemical, Mitsubishi Material, Sekisui Chemical, Kirin, Suntory, Asahi, etc

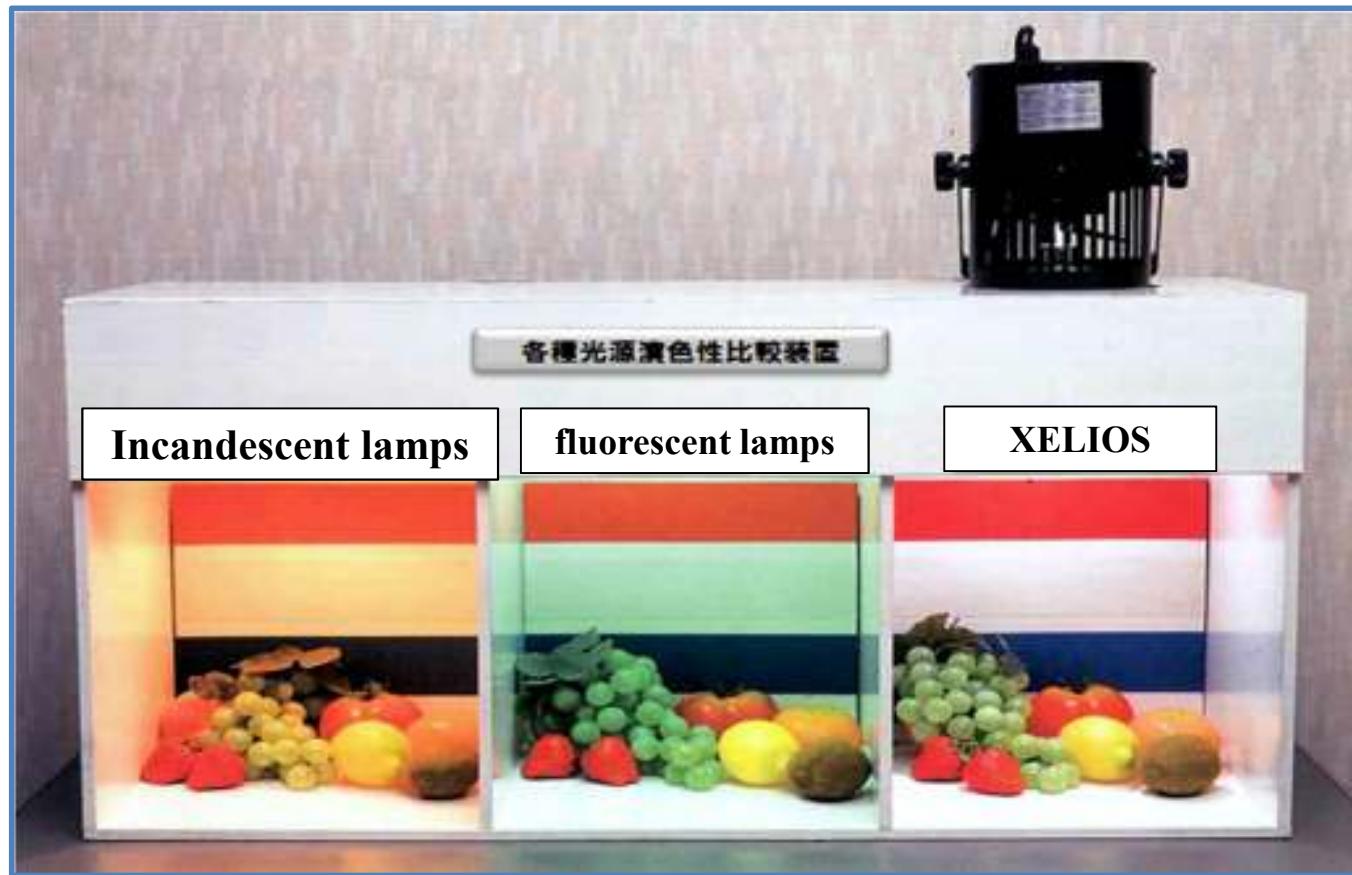
## University

Tokyo Univ., Tokyo Institute of Technology, Kyoto Univ., Osaka Univ., Kyushu Univ., Hokkaido Univ., Seoul National Univ., etc



# XELIOS

Comparison of color rendering of various light sources

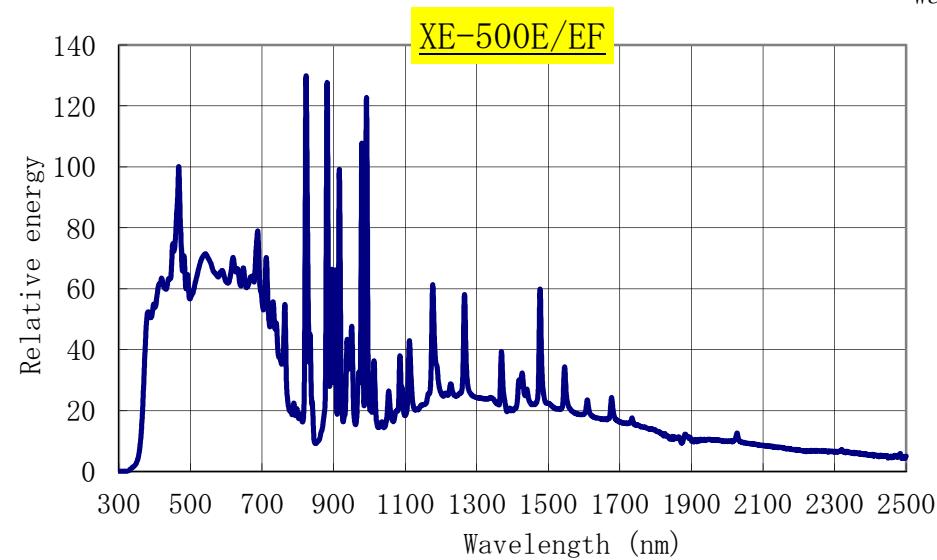
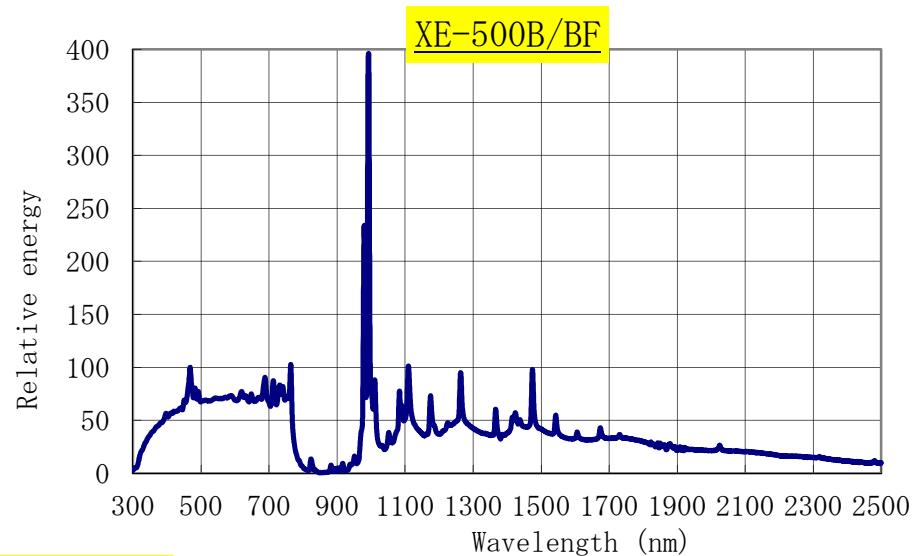
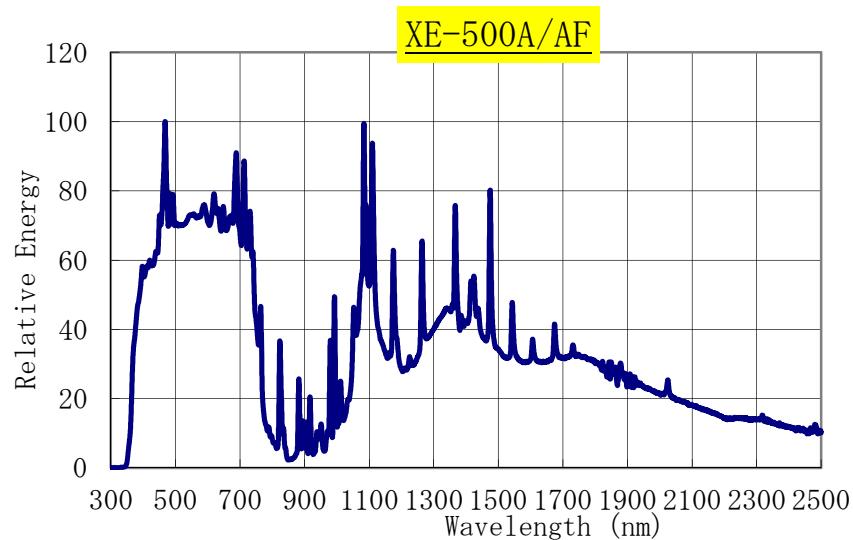


# XELIOS

## High lights & advantages

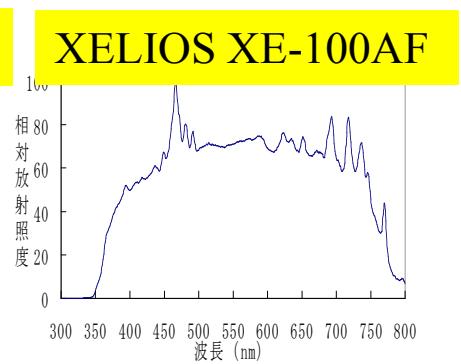
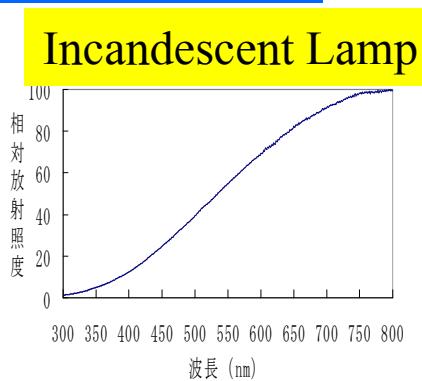
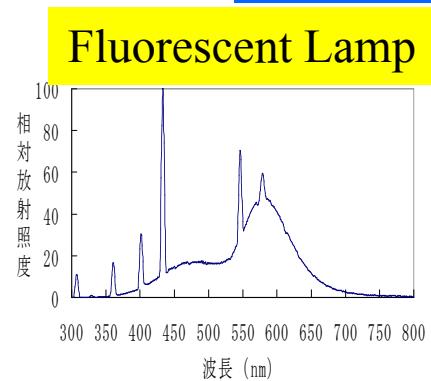
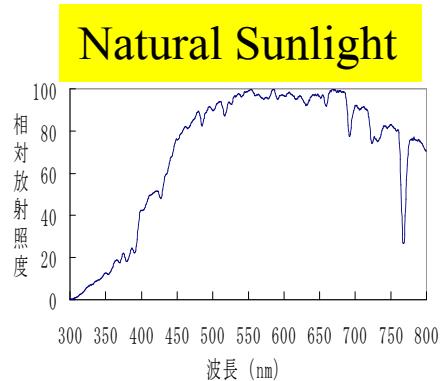
- The only one product in the whole world  
Artificial Solar Illumination Lamp XELIOS
- Low cost of ownership
- Small footprint
- Easy to operate and maintenance
- Experienced after support
- Qualified design and Stable performance

# XELIOS's Spectrum



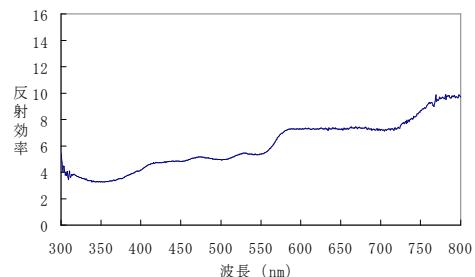
# Difference in Vision of Color

To irradiate 4 light beam



To the target of

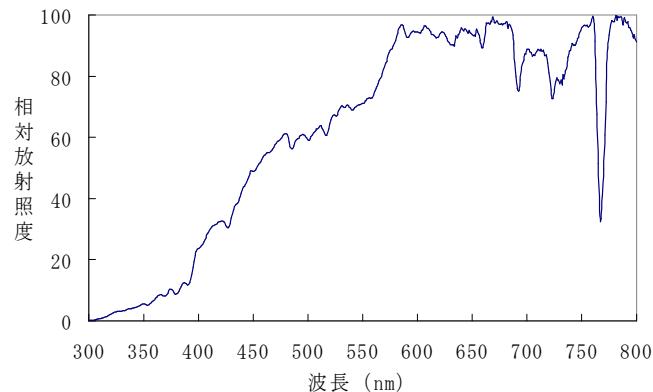
Spectral reflectance of human skin



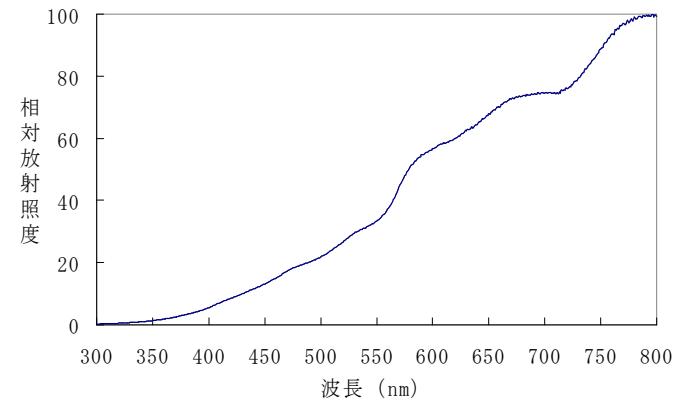
Makes...

# Comparison of Spectral Reflectance to be irradiated by・・・

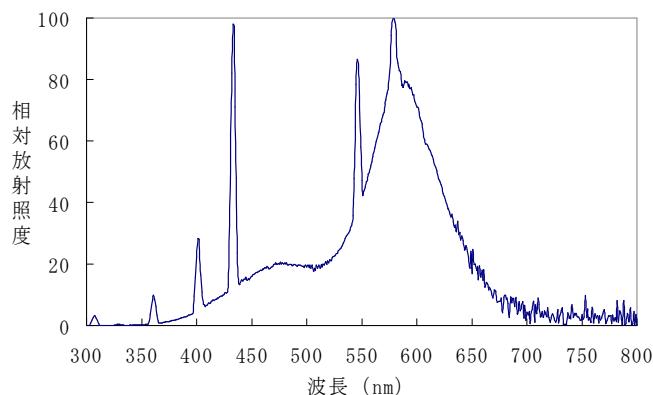
Natural Sunlight



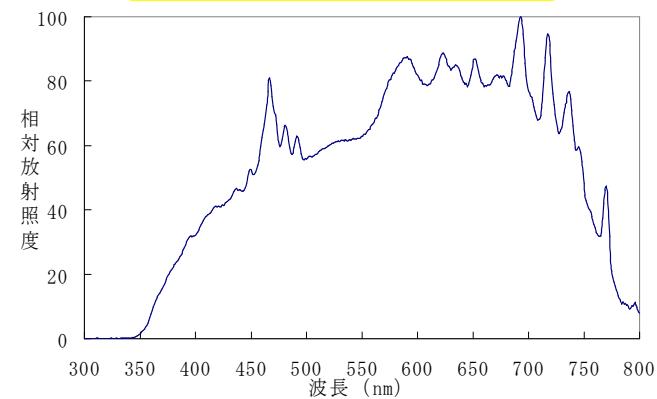
Incandescent Lamp



Fluorescent Lamp



XELIOS XE-100AF



# Requirement Governing Light sources used for Color Evaluation

## Requirement 1

The average color rendering evaluation index of the light source shall have a Minimum 96, preferably as close to 100 as possible.

## Requirement 2

The color temperature of the light source shall be as close as possible to a color temperature of 5000-6000K of sunlight.

## Requirement 3

Intensity of illumination shall be well provided.

## Caution 1

The characteristics and capabilities pertaining to the three requirements shall not deteriorate as a result of aging.

## Caution 2

The spectral distribution of light shall present a continuous spectrum and such spectrum shall not contain any line spectrums which represent energy in excess of 1.5 times its perimeter.

## Caution 3

All of the three requirements shall be fully supported respectively, and none of them should be neglected.

# Table - Suitability of each of the light sources in relation to the three requirements and three cautions in selecting the best light source for color evaluation

Light source	Requirements			Cautions			Total Point
	1	2	3	1	2	3	
Sunlight at clear daytime	◎	◎	◎	◎	◎	◎	◎
Sunlight at morning or evening	○	×	◎	×	◎	×	×
Sky light from north window	◎	△	◎	○	◎	△	○
Light from cloud or rainy day	○	△	△	△	◎	△	×
Incandescent or halogen lamp	◎	×	◎	◎	◎	×	×
Fluorescent lamp (normal)	×	○	△	△	×	×	×
Fluorescent Lamp (high color)	○	○	△	△	×	△	×
Metal Halide Lamp (High color)	△	○	◎	△	×	△	×
Mercury Lamp (High color)	△	○	◎	△	×	△	×
D65 Fluorescent Lamp	◎	○		△	×	△	×
SOLAX	◎	◎	◎	◎	◎	◎	◎

# What is the Color Rending index(Ra) ?

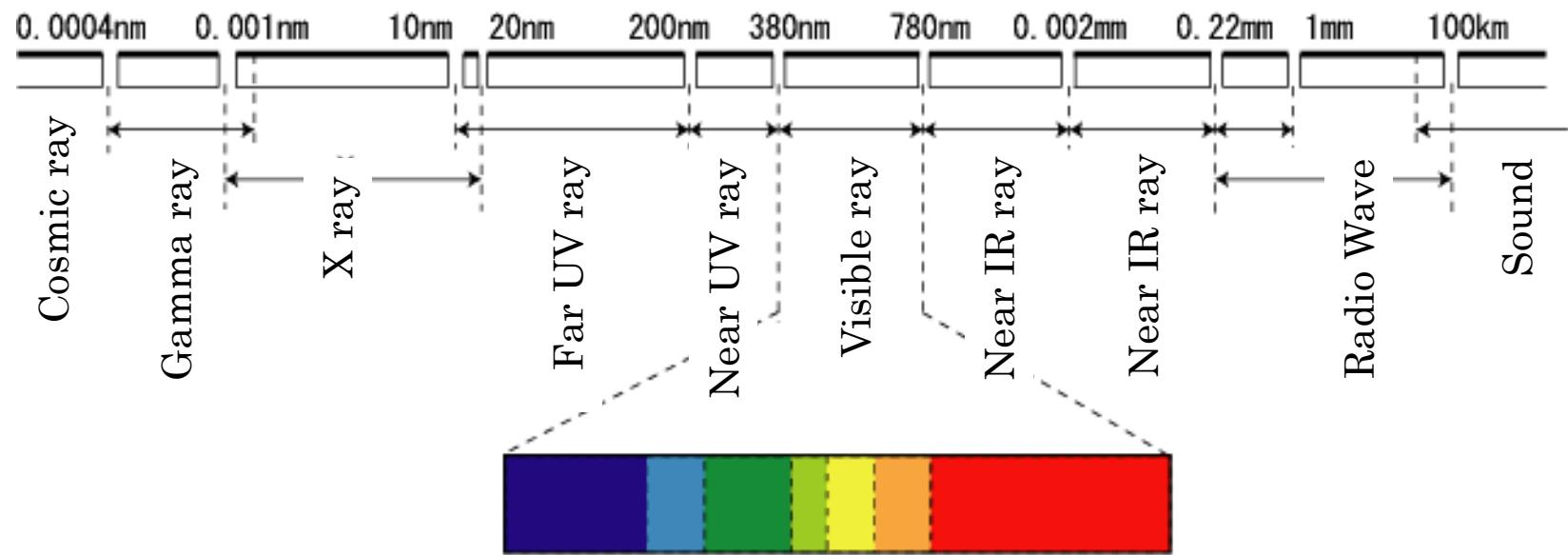
## Average Color Rending index(Ra)

- Ra is expressed as the index which are the color shift that occurs when illuminate the color chart for color rendering evaluation by the light source to be measured on the comparison with a reference beam based on the JIS standard light source.
- The closer this value, the better  
**( Actual sunlight : 100 / XELIOS : 98 )**

# Suggestions about Light

- Quality of Light
- Quantity of Light

# Structure of Light and Designation



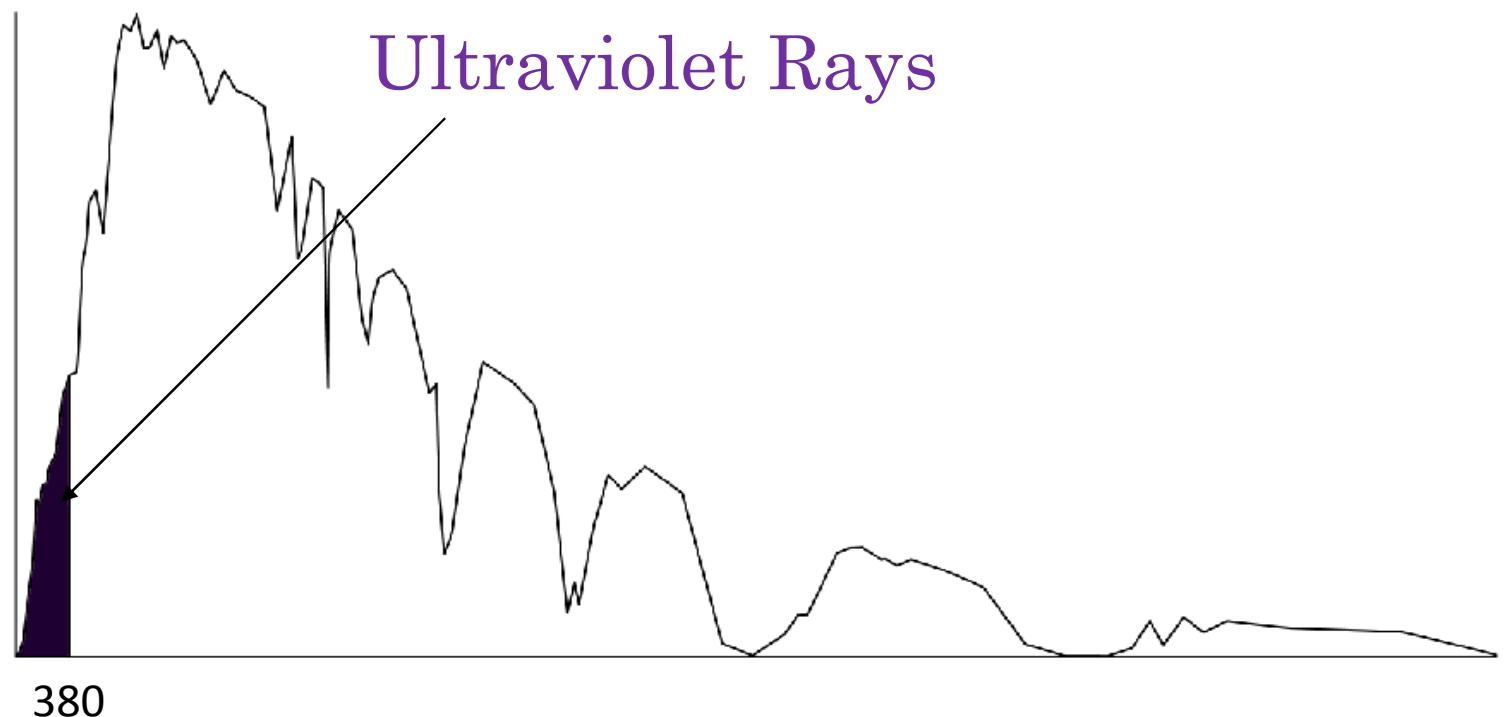
「Nm」 is wavelength unit and called “nano meter”, it suggest one per 10 billion.

Sunlight consist next 3 rays

1. Ultraviolet Rays
2. Visible Rays
3. Infrared Rays

# What is Ultraviolet Ray?

→ Wavelength range of shorter than 380nm



# Classification of UV

UV Rays is classified next three types,

UV-A:400–315nm

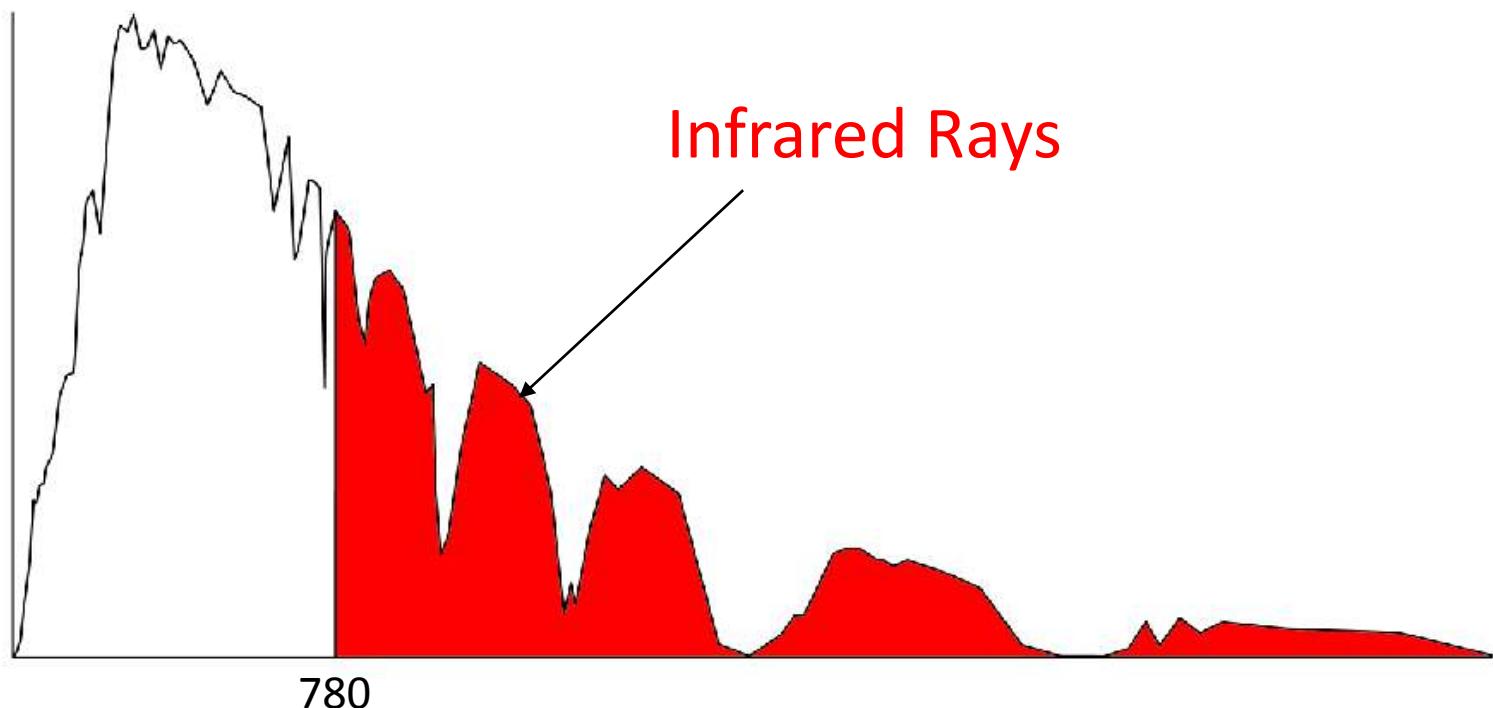
UV-B:315–280nm

UV-C:280–100nm

(from CIE)

# What is Infrared Rays ?

→Wavelength range of longer than 780nm



# Near-Infrared and Far-Infrared Rays

There is no boundary

Irradiated Near-IR rays makes

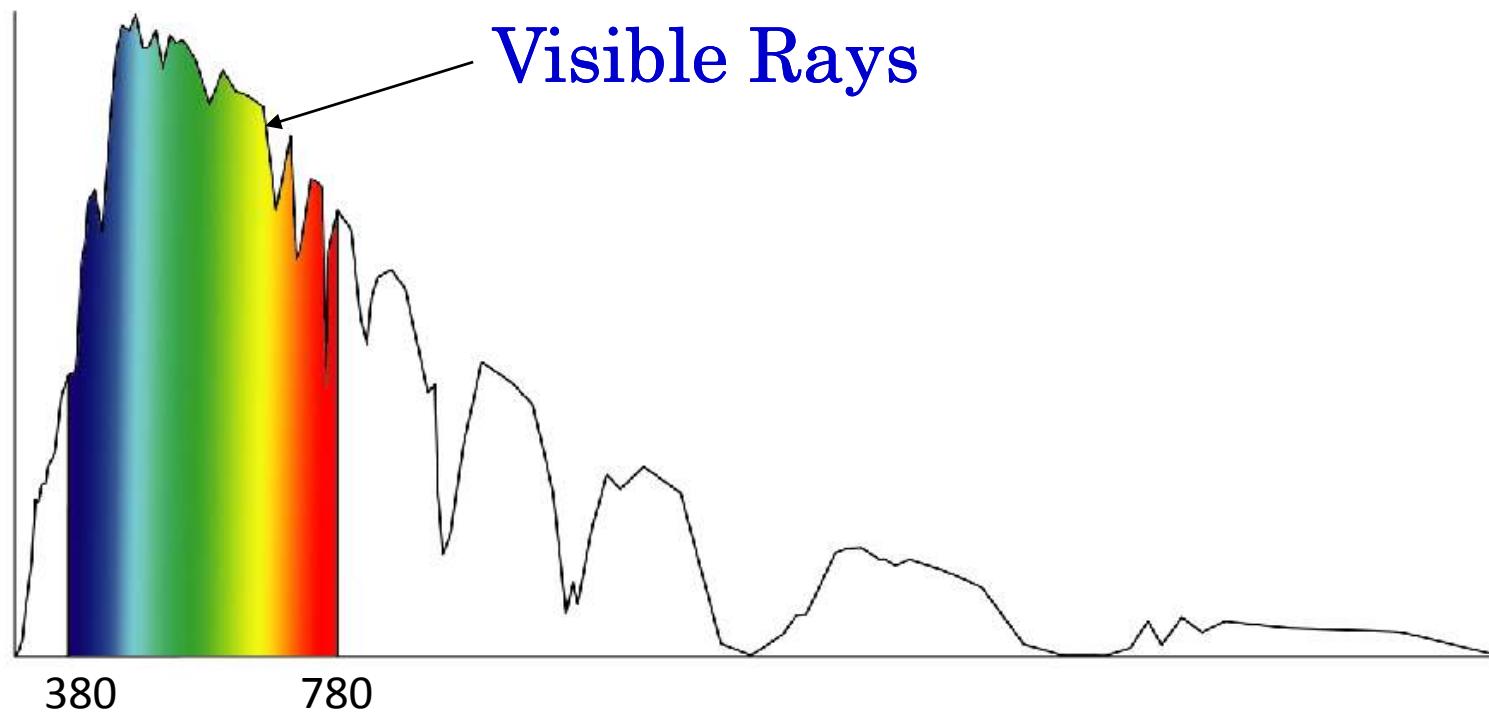
Quick rise in temperature  
Shallow thermal osmotic

Irradiated Far-IR rays makes

Slow rise in temperature  
Deep thermal osmotic

# What is Visible Rays ?

→Wavelength range from 380 to 780nm and visible for human



# Color temperature

One of the expressions of light's quality.

Color temperature is expressed by the temperature from the emission of the black body.

# Natural Sunlight's •••

Illuminance is

- approx. 100000Lx at midsummer's noontime
- approx. 85000Lx at midwinter's noontime

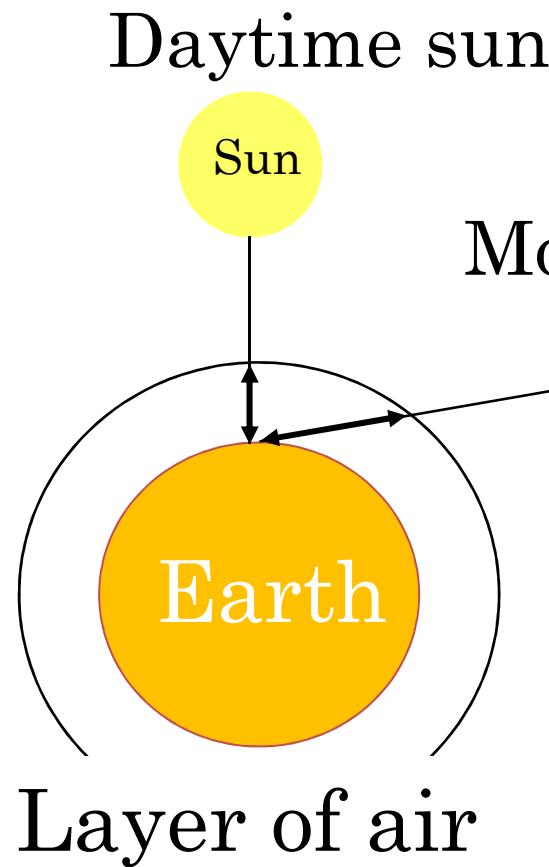
Color temperature is

- approx. 5500K at midsummer's noontime
- approx. 5000K at midwinter's noontime

Those are the case in Japan,

They maybe higher in CA

# Quality of Sunlight



Morning and evening sun

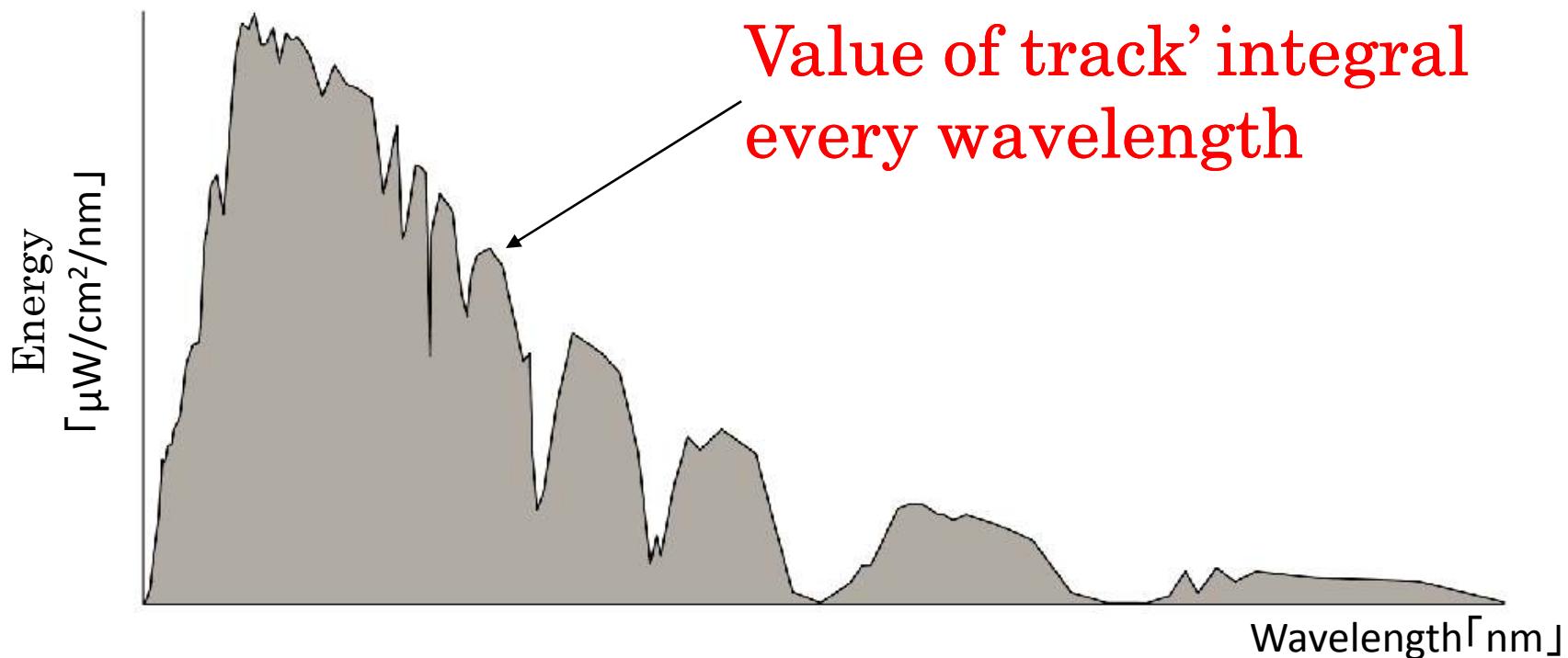
Short root to pass through layer of air  
Less attenuation short-range wavelength  
High color temperature –blue strong

Long root to pass through layer of air  
Heavy attenuation short-range wavelength  
Low color temperature –red strong

※The reason why rising and setting sun is red

# What is irradiated energy?

→ Summation of irradiating energy at every wavelength



# What is Air Mass (AM)?

Pass length of the direct solar radiaton to the earth

# Calculating formula of Air Mass

$$\text{Air Mass } m = 1 / \sin \beta$$

Solar elevation angle  $\beta$

$$= \cos^{-1}(\sin^2 \gamma + \cos \alpha \cdot \cos^2 \gamma)$$

$\alpha$ : culmination altitude ( $^{\circ}$ )

$\gamma$ : Shift of sun ( $^{\circ}$ )

※  $\gamma = 0^{\circ}$  means noontime

$\gamma = 30^{\circ}$  means noontime  $\pm 2$  hours

# Characteristic of direct solar radiation on a clear day at Tokyo (excluded scattering light from blue sky)

Date	culmination altitude	Solar elevation angle $\beta$		Air Mass		Color temperature(K)	
		$\alpha$ (°)	$\gamma=0^\circ$	$\gamma=30^\circ$	Noontime	Noontime ± 2h	Noontime
16-Jan	33.4	33.4	28.82	1.816	2.704	5192	5101
15-Feb	41.63	41.63	35.84	1.505	1.707	5309	5232
17-Mar	52.93	52.93	45.4	1.253	1.404	5411	5349
16-Apr	64.4	64.4	54.96	1.108	1.221	5472	5424
16-May	73.4	73.4	62.33	1.043	1.129	5501	5463
15-Jun	77.65	77.65	65.76	1.023	1.096	5510	5478
15-Jul	75.9	75.9	64.36	1.031	1.109	5507	5472
14-Aug	68.78	68.78	58.56	1.072	1.172	5488	5445
13-Sep	58.23	58.23	49.84	1.176	1.308	5443	5388
13-Oct	46.66	46.66	40.11	1.374	1.552	5361	5291
17-Nov	35.43	35.43	30.55	1.725	1.967	5226	5138
17-Dec	31.01	31.01	26.77	1.941	2.22	5148	5051
Ave.	54.95	54.95	46.94	1.339	1.496	5380	5319

# Calculating formula of irradiance

$$\text{Irradiance } E = 6.83 \times \sum_{380}^{780} E \cdot WD \cdot V$$

$E$  : Spectral Irradiance ( $\mu\text{W}/\text{nm}/\text{cm}^2$ )

$WD$  : Wavelength gap (nm)

$V$  : spectral luminous efficiency

# Solar Simulator

For PV Cells



Model : XIL-01B50KP  
Irradiance area : □ 50mmS



Model : XIL-05B156KP  
Irradiance area : □ 156mm<sup>2</sup>

For PV Modules

Continuous type  
Solar simulator



Model : SML-50KA  
Irradiance area : 1.8x 1.5m<sup>2</sup>

Duration test  
Solar simulator  
\*1)



Model : SML-22KP  
Irradiance area : 1.8x 1.5m<sup>2</sup>

\*1) Thermostatic chamber by SHINNIHON KAGAKU MFG., LTD.

For PV Cells

# Solar Simulator Line up

JIS C 8912/ 8933  
CLASS AAA

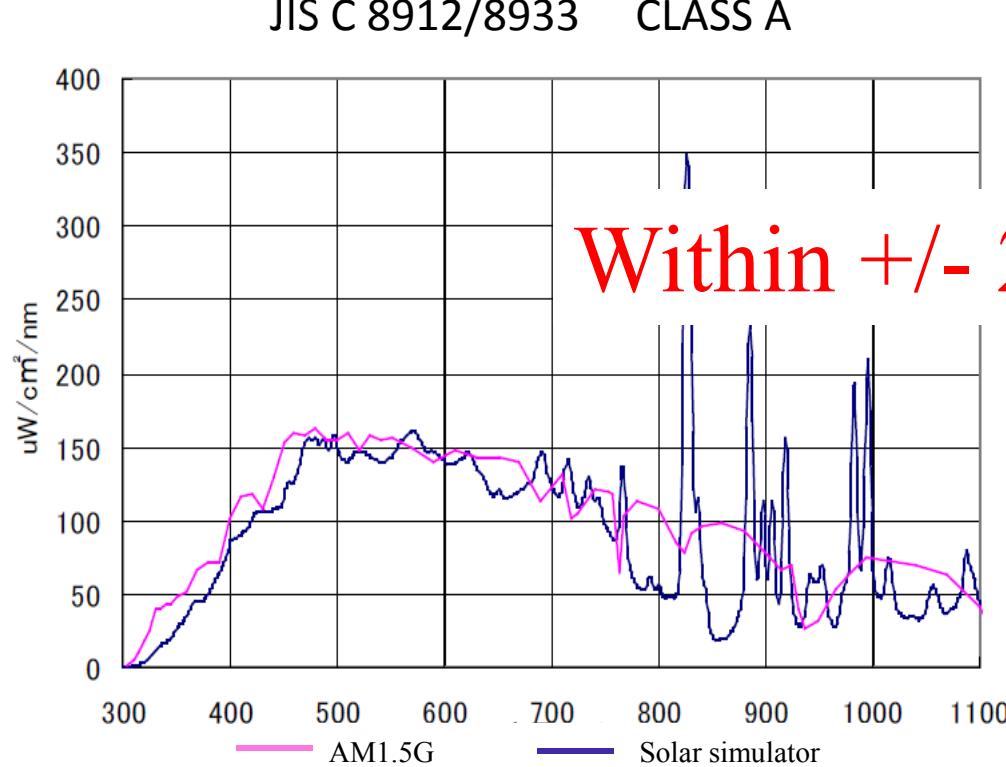
Irradiance area	<input type="checkbox"/> 50mm	<input type="checkbox"/> 80mm	<input type="checkbox"/> 100mm	<input type="checkbox"/> 156mm		<input type="checkbox"/> 210mm		<input type="checkbox"/> 300mm											
Model	XIL-01B50KP	XIL-05B80KP	XIL-05B100KP	XIL-05B156KP	XIM-1B156KP	XIL-1B210KP	XIM-3B210KP	XIM-3B300KP											
Type	Desktop					Stand alone with Casters													
Lamp type	Xenon Lamp																		
Lamp power	140W	500W			1000W		3000W												
Average lamp life	1500h	1000W																	
Irradiance	1000W/m <sup>2</sup>																		
spectrum	AM1.5G																		
Maximum incident angle of irradiated surface	within 5°	within 5°	within 5°	within 10°	within 3°	within 10°	within 3°	within 3°											
Irradiation distance	Approx 160mm	Approx 230mm	Approx 200mm	Approx 260mm	Approx 300mm	Approx 300mm	Approx 300mm	Approx 260mm											
spectral coincidence	CLASS A																		
Temporal instability of irradiance	CLASS A																		
Positional non-uniformity of irradiance	CLASS A																		
Electric Power Supply	1 φ 100/200V						3 φ 200V												
External dimensions (mm)	870x280x360	1200x350x420	1200x350x420	1200x550x420	1900x500x1000	1900x500x850	2000x560x1160	2115x640x1500											
Weight (kg)	40	60	60	60	150	120	180	300											

For PV Cells

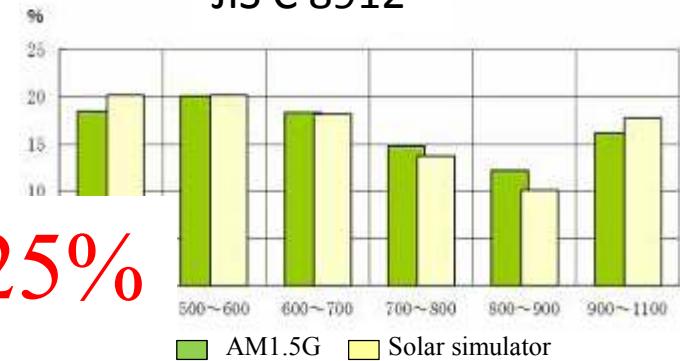
# Solar Simulator

## Spectral coincident

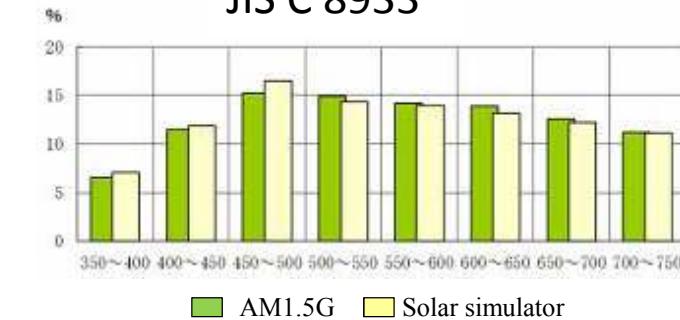
JIS C 8912/ 8933  
CLASS AAA



JIS C 8912



JIS C 8933



For PV Cells

# Solar Simulator

## Highlights & advantages

JIS C 8912/ 8933  
CLASS AAA

- High quality artificial sunlight
- Flexibility and Availability for customization
- Low cost of ownership
- Small footprint
- Easy to operate and maintenance
- Experienced after support
- Removable touch panel controller(Cable 1m)

# Solar Simulator

JIS C 8912  
CLASS AAA

For PV Modules

TOTAL AUTOMATION

## Continuous type Solar simulator



Model : SML-50KA  
Irradiance area : 1.8x 1.5m  
2KW Metal halide lamp x 20ea  
Irradiance : 1KW/m<sup>2</sup>  
CLASS AAA (JIS C 8912 )  
Distance of irradiance : 3m  
Horizontal irradiance

## Duration test Solar simulator \*1)



Model : SML-22KP  
Irradiance area : 1.8x 1.5m  
2KW Metal halide lamp x 9ea  
Irradiance : 1KW/m<sup>2</sup>  
CLASS BAC (JIS C 8912 )  
Distance of irradiance : 3m  
Down irradiance

\*1) Thermostatic chamber by SHINNIHON KAGAKU MFG., LTD.

## SERIC ADVANTAGE

We can propose variety specification according to your purpose, budget, Module size, etc.

# XELIOS / Solar Simulator

## key points

**XELIOS** SERIC standardized the way to evaluate colors at AIC Color 97  
(International color conference 97 Kyoto Japan) in 1997

Specification	Actual sunlight	SOLAX
Spectral coincidence (Match)	High approximation	
Color temperature	5000~6000K	5500K
Color Rending index (Ra)	100	98

**Solar Simulator** is designed according with JIS C8912/ C8933 CLASS AAA

Specification	Grade
Spectral coincidence (Match)	Class A
Non uniformity of irradiance	Class A
Temporal instability	Class A

# Solar Simulator

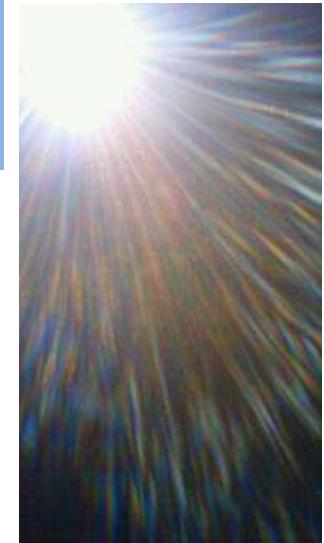
Track record of sales

- University      Hokkaido University  
                      Shinshu University  
                      Yokohama National University  
                      Kyushu University  
                      etc
- R&D section of PV manufacturers
- R&D section of the other manufacturers
- National laboratories

Custom –made lighting systems

# Fiber type light source system

Target user	: Digital camera maker
Irradiation samples	: Lens of digital cameras
Research subjects	: Evaluation of ghost
Model	: XL-500FV1
Type	: Desk top
Utility	: 1φ100V 50/60 Hz
Voltage	: AC90~120V
Input power	: Approx 900VA
Input current	: Approx 9A
Lamp	: 500W Xe lamp
Model	: SET-501F
Lamp average life time	: 1500H (Continuous use)
Temporal stability of irradiance	: $\pm 4\%$
Spectral distribution	: 350~800nm * UV and IR are cut
Color temperature	: Approx. 5500K
Dimension of irradiance port	: $\Phi 10\text{mm}$
Effective irradiance area	: $\Phi 100\text{mm}$
Irradiation distance	: Approx. 1150mm (from irradiance port)
Output illuminance	: Over 5000Lx
Positional non-uniformity of irradiance	: Within $\pm 10\%$
Cooling	: Air cooling
Light guide	: Accessories (With out put 1 lens, Length : 2m )
Operational thermal range	: 0~30 Degree C
Operational humidity range	: 25~85% RH



# Lighting system for lens evaluation

User	:	Optical products maker
Irradiated samples	:	Glasses, Sun glasses
Research subjects	:	The characteristic degradation due to UV irradiance
Model	:	KXL-5IL20CV
Utility	:	1φ100V 50/60 Hz
Voltage	:	AC90~120V
Input power	:	Approx. 1000VA
Input current	:	Approx. 10A
Lamp	:	SET-501F
Lamp average life time	:	1500H (Continuous use)
Temporal stability of irradiance	:	±4%
Spectral distribution	:	300~700nm
Allowable tolerance of irradiance	:	JIS T 7333 6.5.2.1
Irradiance area	:	Φ20mm Above
Output illuminance	:	100000 Lx or more
Irradiance adjustment range (Continuous)	:	50~ 100 %
Variable function	:	continuously variable by the current setting device
Operational thermal range	:	0~30 Degree C
Operational humidity range	:	25~85% RH



# Solar simulator (Metal halide type) I

User	: University, Institute of technology
Irradiation samples	: PV Modules
Research subjects	: PV Modules test
Model	: SML-2K4AV2
Effective irradiance area	: 800mm×800mm
Direction of Irradiance	: Downward
External dimensions	: Lighting system Approx. W1600 × D1640 × H2000mm : Control unit Approx. W1200 × D600 × H1800mm
Weight	: Lighting system Approx. 700kg Control unit Approx. 400kg
Lamp	: 2000W Metal halide lamps
Number of lamps	: 4 Lamps
Distance of irradiance	: Approx. 800mm
Spectral match	: JIS C 8912 Class C
Temporal instability of irradiance	: JIS C 8912 Class C
Positional non-uniformity of irradiance	: JIS C 8912 Class C
Irradiance	: 1000W/m <sup>2</sup> or more
Irradiance adjustment range (Continuous)	: 70~100%
Lamp average life time	: 1500H (Continuous use)
Voltage	: AC200V 3φ 50Hz
Power supply	: 11kVA
Operational temperature	: 0~35 Degree C
Operational humidity	: 10~90% R H



# Solar simulator (Metal halide lamp type) II

User	: University, Institute of technology
Irradiation samples	: Architectural materials
Research subjects	: Heat dissipation test
Model	: SML-2K1F
Direction of Irradiance	: Downward
Utility	: 1φ200V50/60Hz
Input power	: 2400VA
Input current	: 12A
Lamp	: 2000W Metal halide lamps
Effective irradiance area	: 300mm x 300mm
Temporal instability of irradiance	: Within $\pm 5\%$
Positional non-uniformity of irradiance	: Within $\pm 15\%$
Spectral match	: Class C (Transparent glass JIS C 8912)
Irradiance	: Approx. $1000\text{W}/\text{m}^2$ approx. $1100\text{W}/\text{m}^2$
Irradiance adjustment range (Continuous)	: 70 ~ 100%
Cooling	: Air cooling
Operational temperature	: 0 ~ 30 degree C
Operational humidity	: 10 ~ 90%RH
Weight	: Approx. 130kg



# Light source for auto light sensor test

User	: Automobile electronics suppliers
Irradiation samples	: Auto light sensor
Research subjects	: Illuminance variable, Sensor level test
Feature	: Light guide output
Utility	: 1φ100V50 / 60 Hz
Input voltage	: AC90~120V
Input power	: Approx. 250VA
Input current	: Approx. 2.5 A
Lamp	: Halogen Lamp ( Standard light source A)
Lamp power	: 12V 100W
Lamp average life time	: 2000 H
Temporal instability of irradiance	: ±4%
Spectral distribution	: 400~2000nm
Color temperature	: 2856K
Irradiance adjustment range	: DC 0V~5V (Manual or external signal)
Effective irradiance area	: φ45mm or more
Distance of irradiance	: Approx. 160mm from output lens
Output illuminance	: 2000 Lx or more
Illuminance adjustment range	: 0 Lx~2000 Lx
Variable method	: Stepping motor for continuous shading
Accuracy of variable	: 2 Lx or less
Cooling	: Air cooling
Light guide	: With output lens



# Solar simulator for inspection

User	:	Automobile maker
Irradiation samples	:	Sensor
Research subjects	:	R&D for Auto light sensor
Model	:	XHS-0503A1
Type	:	Stand alone
Utility	:	1φ100V 50/ 50 Hz
Input power	:	Approx. 1400 VA
Input current	:	Approx. 14A
Lamps	:	Xe Lamp & Halogen lamp
Effective irradiance area	:	300mm square or more
Irradiance height	:	2000～3000mm
Elevation angle	:	0～45 Deg
Range of illuminance	:	50～1800Lx * * Adjusted by ND filter, Illuminance distance 3000mm
Positional non-uniformity of irradiance	:	Within ±10%
Spectral match	:	JIS C 8912 Class A * * Xe Lamp + Halogen lamp
Operational temperature	:	0～35 Degree C
Operational humidity	:	0～90% RH



# Sunlight irradiation system

User	: Automobile maker
Irradiation samples	: Sensor
Research subjects	: R&D for Auto light sensor
Model	: GXC-500ETM4
Type	: Stand alone
Utility	: 1φ200V 50/60 Hz
Input Current	: Approx. 20 A
Lamp	: Xenon Lamp 500 W
Effective irradiance area	: 300mm Square or more
Distance of irradiance	: 600mm
Irradiance adjustment range	: 1kW/m <sup>2</sup> or more
Positional non-uniformity of irradiance	: within ±15%
Spectral match	: JIS C 8912 Class A
Cooling	: Air cooling
Operational temperature	: 0~35 Degree C
Operational humidity	: 0~90%RH



# Accelerated endurance testing system for PV module

User	: Automobile parts maker
Irradiation samples	: Photo voltaic
Research subjects	: Objective accelerated endurance test of PV
Model	: SML-2K1CH-V2
Type	: Temperature & humidity test chamber type
Utility	: 3φ200V 60Hz
Input Current	: Approx. 10 K A
Lamp	: 2KW Metal halide lamp
Effective irradiance area	: 300mm square
Range of thermal control	: 30, 40, 50, 60 ±5 Degree C
Irradiance adjustment range	: 1kW/m <sup>2</sup> or more
Positional non-uniformity of irradiance	: Within ±10%
Spectral match	: JIS C 8912 Class B
Temporal instability of irradiance	: JIS C 8912 Class B
Cooling	: Air cooling
Operational temperature	: 0~40 Degree C
Operational humidity	: 10~90%RH



# Sunlight irradiation system for phototoxicity test

User : Pharmaceutical maker

Research subjects : Phototoxicity test

Model : SXL-3000V2

Direction of Irradiance : Downward

Utility : 3φ200V 50/60 Hz

Input power : 5.2kVA

Input Current : 15 A

Lamp : Xenon Lamp 3000 W

Effective irradiance area : 350mm Square

UV-A irradiance : UV-A 2.5mW/cm<sup>2</sup> or more

Temporal instability of irradiance : Within ±5%

Positional non-uniformity of irradiance : within±15%

Operation : Manual

Cooling : Air cooling

Operational temperature : 0~30 Degree C



# Light resistance test system

User	: Pharmaceutical maker
Research subjects	: Phototoxicity testing for medicine
Model	: SXL-3K2P30V2
Direction of Irradiance	: Downward
Number of lamps	: 2 lamps
Lamp	: Xenon Lamp 3000 W
Effective irradiance area	: 600mm x 250 mm
Output illuminance	: 130000Lx
Illuminance adjustment range	: 100~50% (Non step)
Temporal instability of irradiance	: Within $\pm 5\%$
Positional non-uniformity of irradiance	: within $\pm 15\%$ (Target $\pm 10\%$ )
Measuring points	: According to JIS C 8912
Range of thermal control	: $25 \pm 2$ Degree C
Operation	: Manual
Cooling	: Air cooling
Operational temperature	: 0~30 Degree C



# Solar simulator for Photovoltaic test

User	: Photovoltaic maker
Research subjects	: R&D, Quality test for PV
Model	: XIL-3B200KS
Direction of Irradiance	: Downward
Utility	: 3φ200V 50/60 Hz
Input power	: 5kVA
Input Current	: Approx. 14.5 A
Effective irradiance area	: 200mm square
Irradiance	: 100mW/cm <sup>2</sup>
Illuminance adjustment range	: 100~50% (Non step)
Positional non-uniformity of irradiance	: within±2% (JIS Class A )
Spectral distribution	: 300~2500nm
Spectral coincidence	: JIS C 8912 Class A
Operation	: Manual
Shutter function	: Open/Close shutter
Cooling	: Air cooling
Operational temperature	: 0~30 Degree C
Operational humidity	: 10 ~ 90%RH
Weight	: Approx. 75kg



# Surface light source for LCD evaluation

User : LCD panel maker

Research subjects : LCD monitor evaluation

Model : SF-1518S

Utility : 3φ200V 50/60Hz

Power consumption : Approx. 18kVA

Lamp : XC-500AF × 20 units

Effective irradiance area : 1500mm × 1800 mm

Brightness(Light emitting surface) : 7000 cd/m<sup>2</sup>

Center illuminance : 18000Lx

Weight : Approx. 300kg



# Illuminance system for photography

User	: Electronics or Digital camera maker
Research subjects	: R&D or Image evaluation of digital camera
Model	: SXC-500AF4B SYSTEM
Type	: Stand alone
Utility	: 1φ200V 50/60 Hz
Power consumption	: Approx. 6.5 kVA
Lamp	: SXC-500AF4B × 2 sets
Irradiance area	: 2000 × 2000 mm
Distance of irradiance	: Approx. 2000mm
Average illuminance	: 3000 Lx or more
Positional non-uniformity of irradiance	: within $\pm 10\%$
Color temperature	: 5500 K $\pm 10\%$
Color conversion filters	: Option*
Light power control	: Batch control ( 4 lamps)



\* Color conversion filter can be served a 500K each between 2000 to 7500 K.

# Remote control type XELIOS for Paintwork inspection

User	: Paint material maker
Irradiation samples	: Light source for their own products : display or presentation
Model	: XCR-500AF
Utility	: 1φ100V
Lamp	: 500W Xenon Lamp
Mounting method	: Ceiling mounted
Turning angle	: Left 90° Right 90° (Left 90° MAX, Right 90° MAX)
Turning speed	: 6° / sec
Elevation angle	: Upper 90° Down 0°
Elevation speed	: 4° / sec
Weight	: Approx. 15kg



# Thank you for your attention

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