



Leading Innovative Professional

Provider for Indoor LED Lighting System Solution
with High Reflex Indirect Lighting Technology

MY LUMENS TECHNOLOGY
明月光科技



高品質の光生活へ
Uniform Lighting-Healthy Life



床前明月光
疑是地上霜
舉頭望明月
低頭思故鄉

靜夜思 李白



About MY LUMENS

MY LUMENS is the leading & innovative indoor LED lighting solutions provider for healthy and high efficiency led lighting, applications mainly focus on school lighting, hospital lighting, high-end office lighting market.

As a Japanese base company, the product mainly originated from Japanese leading technology (Furukawa material MCPET with indirect led lighting solution). Many innovation designs and patents were released base on the professional R&D team since 2009.

The main products are T8 led tubes, Baselight ,downlight, FPL, linear light, and back-lit panel light, troffer, and are widely used at Louis Vuitton ,Prada,Gucci,TBS, Kubota, Mitsubishi, Honda, ASE Taiwan, CLP HK etc., such kinds of famous companies all over the world.

MY LUMENS will bring to you the amazing lighting experience with patented HRIL technology, offering to end customer with high efficiency (up to 200lm/w), high uniformity with low glare, more healthy light with less blue light and flicker free. Our end customers are always satisfied and confident for the Japanese standard quality level with high reliability as very low defect and good after service.



Partners

We are strategic partner with Furukawa Japan and Taihe Chemical Japan at Asian market.

We have many lighting solutions and joint develop together with many famous lighting source company –Cree/Lumileds(Downlight and LED Signboard Solutions), SAMSUNG and OSRAM(T8 Tube and Panel Lighting Solutions), some solutions have been used in their reference design.

R&D Team

With more than 10 years' working experience at the world' s leading lighting company(PHILIPS/CREE) before, our R&D team can offer the world class design for optics solutions, heating solutions and power supply solutions.

Patent

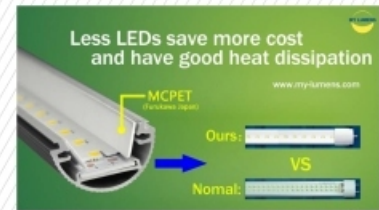
We have lots of new patents and innovation designs for almost all our products.



New technology MCPET inside

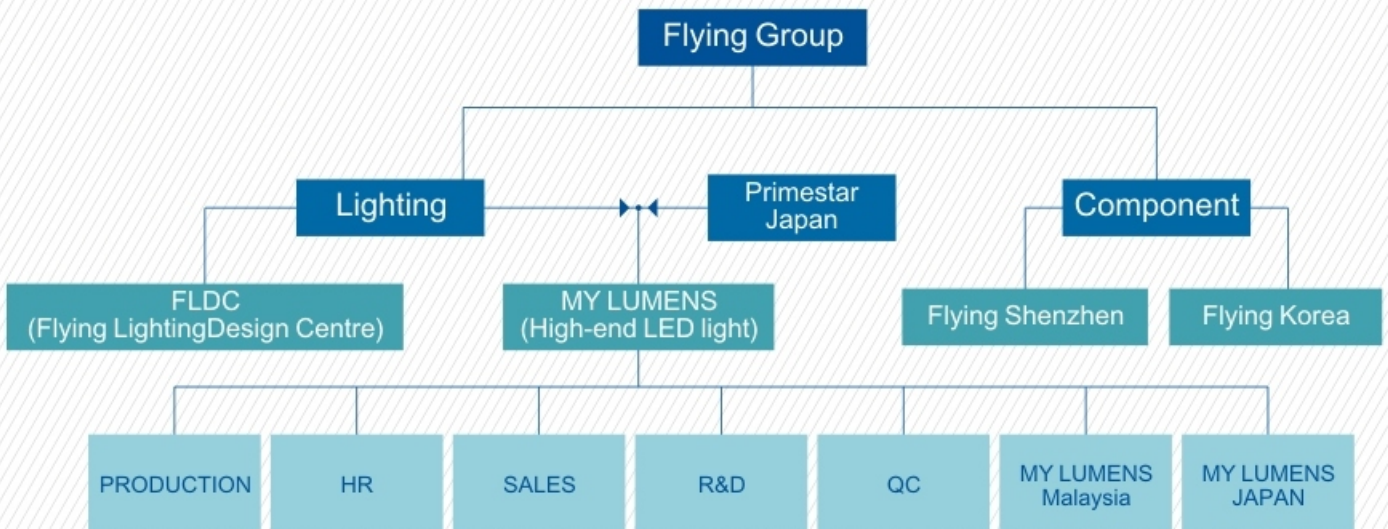


Mid-power LEDs solution



Good heat management ,high PF Driver

Organization Structure



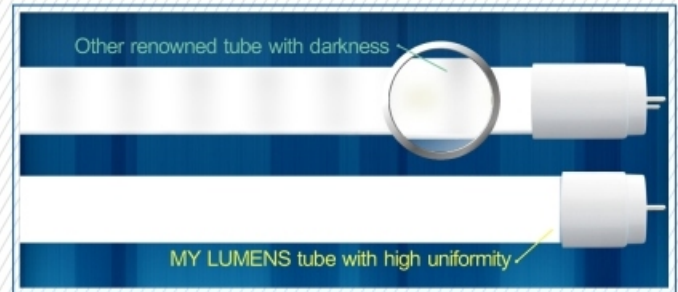
LED Lighting Design House

Structure Design

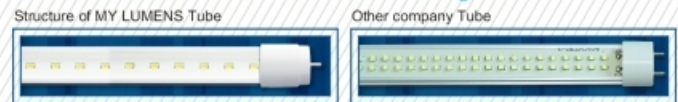
We use MCPET in our LED light, and MCPET is the excellent optical reflection material, our Tube structure design is based on the optical utilization principle, good uniformity is from the special structure design

The difference of "MY LUMENS" and "Other companies" Tubes

	MY LUMENS	Others
Power	11W	18W
Lighting Sources	Mid-power (LM80 Test)	SMD 2835
LEDs	63-100pcs	120-160pcs
Luminous Flux	2000lm	1600lm
Light Efficacy	180lm/w	90lm/w
Structure	MCPET inside	Normal
Patent of Tube light structure	YES	NO



Structure of MY LUMENS Tube
MCPET inside "MY LUMENS" LED Tube light



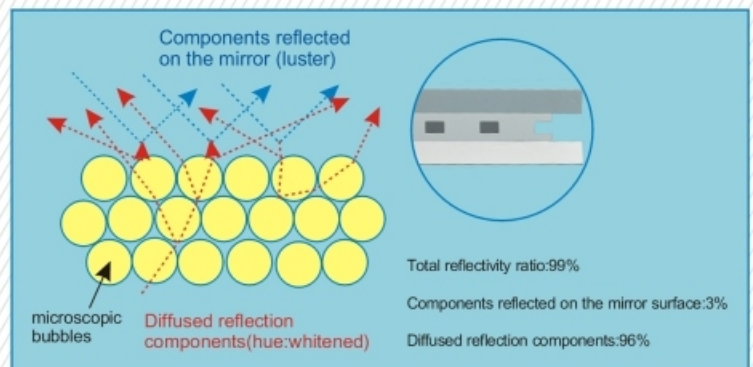
Optical Design

We use MCPET in our LED light, and MCPET is the excellent optical reflection material, our Tube structure design is based on the optical utilization principle, good uniformity is from the special structure design



The advantage of MCPET

- ➔ Excellent optical reflection performance
 - ➔ Total reflection rate 99%, the diffuse reflection is 96% among there
 - ➔ It is effective to the illuminance improvement and the conservation of energy of the signboard
 - ➔ The processing and construction are easy
- Heat durability, Flame-retarding, Environmental performance



Thermal Design

To meet our design goal, we adopt the standard heat sink to achieve thermal cooling, we offer the standard Tube based on the thermal design, the heat sink and Thermal simulation, pictures below.

The solder temperature is 45-50 C, so the life time for led will be longer a lot than others.

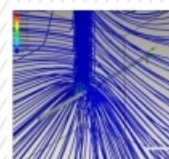


Figure:
Thermal simulation



Figure:
PCB mounted on heat sink/housing

MY LUMENS Products

T8 LED TUBE

Series	Model	Power (W)	Luminous flux(lm)	Light efficacy (lm/W)	LED Chip	CCT (K)	CRI (Ra)	Beam Angle (°)	Input (AC-V)	Base Type	Driver	Remark
T8 600mm	MY-T8065087102E	7W	1000lm	143lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
T8 1200mm	High Effective MY-T81250716202E	16W	2000lm	125lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
	Standard MY-T81250716232E	16W	2300lm	145lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
	High Efficiency MY-T81250812202E	12.5W	2000lm	160lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
	High Efficiency MY-T81250811202E	11W	2000lm	180lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
T8 1500mm	Standard MY-T81550820302E	20W	3000lm	150lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
	High Efficiency MY-T81550820342E	20W	3400lm	170lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%
	High Efficiency MY-T81550825402E	25W	4000lm	160lm/w	Mid-power LED	5000K	80	210	100-240	G13	Single side Input internal	EMC No flicker PF>0.9 THD<20%

* The above lm/w is base on 5000K CCT, and other color temperature 3000K,4000K,6000K,6500K could be optional.

FPL

Series	Replace Model	Model	Power (W)	Luminous flux(lm)	Light efficacy (lm/W)	LED Chip	CCT (K)	CRI (Ra)	Beam Angle (°)	Input (AC-V)	Dimension L * W * H(mm)	Base Type	Driver	Remark
240mm	FPL18EX	MY-FP2450810112A	10W	1,100	110	Mid-power LED	5,000	83	210	100-240	240×39×29	2G11	Internal	EMC No flicker PF>0.9 THD<20%
	FPL27EX	MY-FP2450808112A	8W	1,100	138									
	FHP23EL													
410mm	FPL32EL	MY-FP4150812142A	12W	1,400	110									
	FPL36EX	MY-FP4150812172A	12W	1,700	142									
	FHP32EL													
560mm	FPL45EL	MY-FP5650817192A	17W	1,900	110									
	FPL55EX	MY-FP5650817232A	17W	2,350	138									
	FHP45EL													

* The above lm/w is base on 5000K CCT, and other color temperature 3000K,4000K,6000K,6500K could be optional.

Down Light

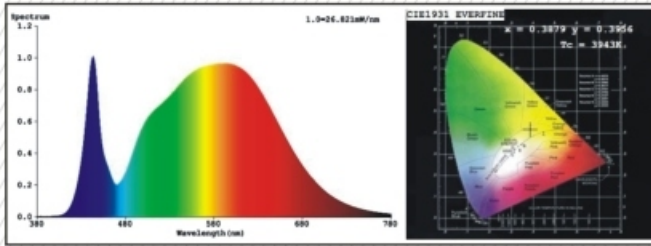
Series	Model	Power (W)	Luminous flux(lm)	Light efficacy (lm/W)	LED Chip	CCT (K)	CRI (Ra)	Beam Angle (°)	Input (AC-V)	Dimension		Driver
										W * H(mm)	Hole dia.(mm)	
5inch	MY-08S-D5-E56	8W	1,000	125	Mid-power LED	5000	80	180°	100-240	180×80	Φ 150	External
	MY-12S-D5-E56	12W	1,500	125	Mid-power LED	5000	80	180°	100-240	180×80	Φ 150	External
8inch	MY-30S-D8-E56	30W	3,500	117	Mid-power LED	5000	80	180°	100-240	230×88	Φ 200	External

* The above lm/w is base on 5000K CCT, and other color temperature 3000K,4000K,6000K,6500K could be optional.

With our world class testing center and engineer team,MY LUMENS can offer almost all the test reports(Optics/Heat/Electronic) for all our product.

Integrating Sphere Measurement System

- ➔ Test the following main parameter of the LED&LED Lighting Fixture
- ➔ Total Lumen
- ➔ CRI,CCT,(X,Y) etc.
- ➔ Power supply efficiency&PF
- ➔ Efficacy of LED Lighting Fixture



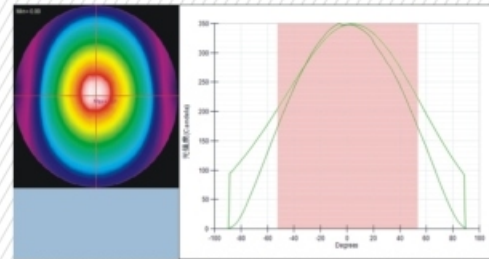
Spectral Distribution

MY LUMENS Lighting Fixture Measurement System

Our Lighting Fixture Measurement System provide the test report for the following main parameters of the LED&LED Lighting Fixture:The view angle,the light distribution,color CCT and brightness(luminance) uniformity and so on

We can provide IES file

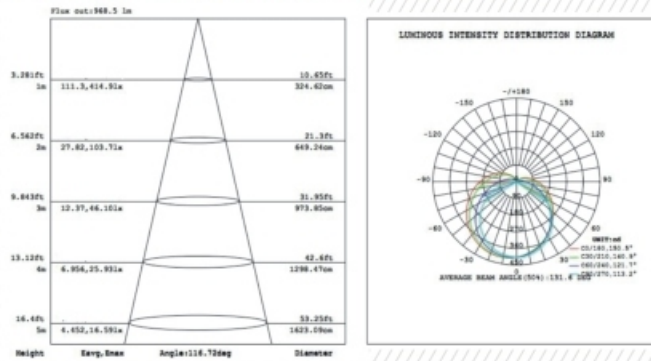
FFP of cd



Note:The curve indicate the cd vs angle

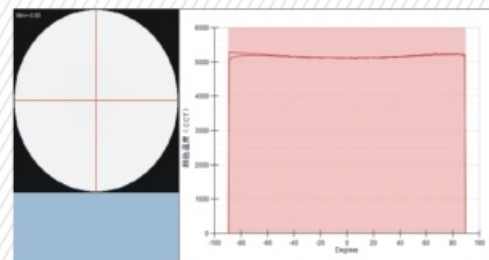
Goniophotometer is used for measurement of the light emitted from an object at different angles

Test light source and lighting fixture 's IES data and Lux



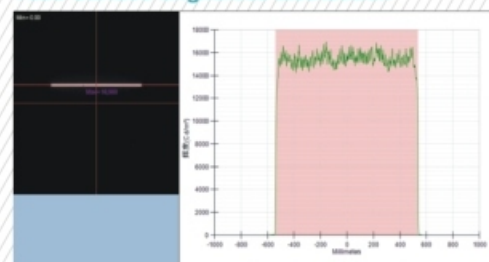
Note:The Curves indicate the Lux at different distance/angles

FFP of CCT



Note:The curve indicate uniform CCT vs angle

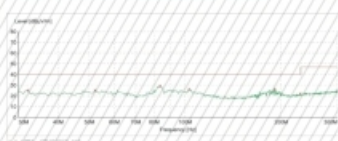
Tube Surface brightness distribution



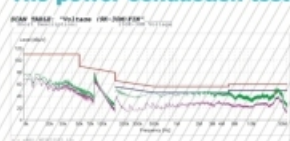
Note:The curve indicate good uniformity of brightness

Power Supply EMC test result, almost 10db margin, good performance(efficiency>87% ,PF>0.95):

The Power radiation test:

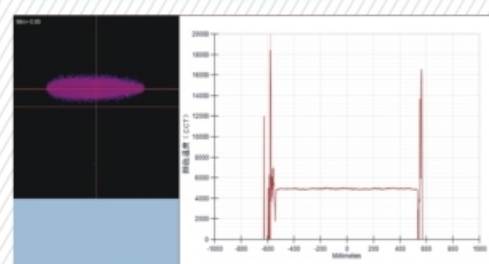


The power conduction test:



Power supply: Thermoelectric separation structure ,with our special design in precise small volume,all main material from USA and Japan (Mosfet—Onsemi/Aluminum Capacitor—Rubycon Japan) It seems that our power supply with high performance.

Tube Surface CCT distribution



Note:Good space uniformity of CCT

How to resolve led glaring issue

What is the impact of glaring light?



Eye Strain



Sleep Disorders



Myopia



Psychasthenia

Why LED Light is Glaring?

Led light radiation angle is 120° . It is a very focus light source which causes eye discomfort due to high contrast ratio with dark surrounding environment, hence reduced visibility of object you are looking at.

Glare light has been a challenge for LED luminaire industries.



How to Solve glaring issue?

01 Reduce efficiency of light output **NG**
Outcome: Will fail customer request for better lighting environment

02 Change of Color Temperature, from 5000K (cool white) to 3000K (warm white) **NG**
Outcome: 5000K CCT is needed for places like school, business centers & etc

03 Add additional diffuser outside T8 Tube to reduce glaring **NG**
Outcome: Most enquiries for T8 tubes are for direct replacement, additional diffuser will complicate the task. Further more, it will also reduce the brightness efficacy

04 Utilizing indirect lighting concept to materialize even distribution hence solve the glaring issue **OK**

What is indirect lighting?

Special Indirect Lighting

Normal indirect lighting is referring to non-directional radiation of light but by utilizing reflected light from the wall, ceiling board or another other media to light-up an area of interest.

Is there a light source which has even distribution, soft and yet bright enough for General Lighting purpose? Or, in another word, is there an indirect light source which is suitable for General Lighting? This will be the savior to overcome glaring issue.

“Special Indirect Lighting” is referring to small portion of the light is direct light but the bigger portion will be blocked by diffuser, which causes TIR effect (total internal reflection). The internal reflected light will then be multiple reflected by reflector to produce non glaring light for General Lighting application. The reflector is MCPET material from Furukawa Electronics Japan. It has special foam type material structure. When the light hit the surface, it will be reflected multiple times and create very effective scattered light which is very even, soft and non glaring light. The reflectivity of this material is as high as 99%, hence it is almost a lossless reflector. We call this as “special Indirect Light” as it uses MCPET material for reflection and not by reflection from the wall or ceiling board.

By using Special Indirect Lighting, it can ensure high brightness (currently 180 lm/w is achievable) and eliminate glaring issue. It is the best lighting for General Lighting and is suitable for schools, hospitals and offices.



Application Field



Why everyone is going for High Efficacy



High Efficacy=Energy Saving

Power Consumption for Different Lighting(2000 lm)

Efficacy
down



180lm/W High Efficacy LED Tube

Flourescent Tube

40W

Conventional LED Tube

20W

11.1W

Reduce
72.25%

CO₂
down



- ① No hazardous material like lead or mercury
- ② Reduce emission of carbon dioxide

Comparing flourescent with LED lighting for CO₂ emission for 40,000 hours(24hours,365days,4.5years)
LED lighting save 939Kg of CO₂ equivalent of CO₂ intake for 67 trees for 50 years(average of 15Kg/tree)

40W Flourescent Tubes
(40W X 2pcs)

$$40W * 2pcs * 0.001 * 40,000h * 0.406 = \text{about } 1,299kg(CO_2)$$

CO₂: about 1299kg

Hight Efficacy LED Tubes
(11.1W X 2pcs)

$$11.1W * 2pcs * 0.001 * 40,000h * 0.406 = \text{about } 360kg(CO_2)$$

CO₂: about 360kg

Reduced 939Kg CO₂ emission
equivalent to CO₂ intake for 67 trees
for 50 years



CO₂ intake for every tree=14Kg of CO₂, Value taken from 2012 Tokyo Electric Power Company (Tepco)

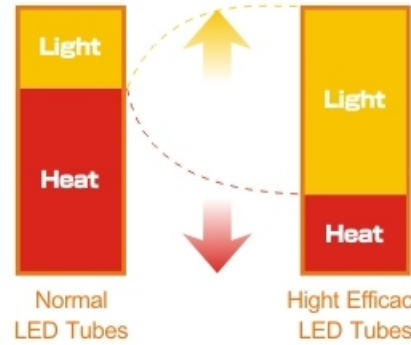
HEAT down



Electricity can be transformed into light and heat. High efficacy in light will generate lesser heat. Lower heat in lighting appliances will reduce components degradation, hence increase life span of the lighting appliances.

High Efficacy LED Tubes will have LONGER life span.

$$\text{Electric Energy} = \text{Light} + \text{Heat}$$



How to increase efficacy lighting?



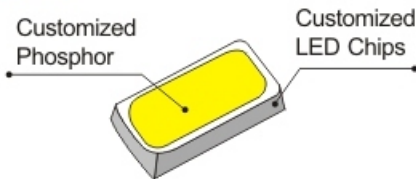
Average designers will have 2 approaches:

- ① Increase LED count, hence reduce current flow to improve lighting efficacy
Will increase in cost, and will have limited improvement (estimated at 140 lm/W)
- ② Increase PC cover transmissivity, hence sacrifice light evenness to improve lighting efficacy
Will cause light glaring. And will have limited improvement (estimated at 145 lm/W)

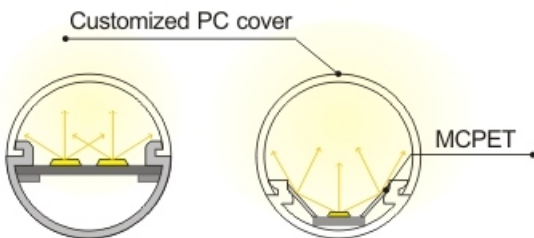
HRIL → High Reflex Indirect Lighting

High efficacy design thru enhanced power supply, special indirect reflection material, LED, and unique PC cover

LED

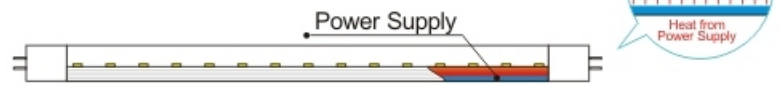


OPTICAL DESIGN



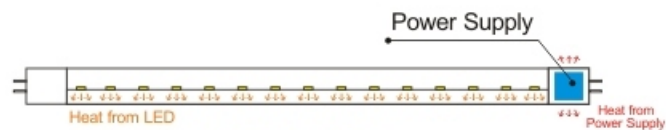
Normal LED Tubes HRIL PC Cover

POWER SUPPLY



Normal LED Tubes

Heat from LED and power supply degrading each other's components



HRIL PC Cover

Separate power from LED, not hot spot, hence components degradation and efficacy improve



Flickering is damaging!

Luminaires are powered by AC current (Alternating Current). The brightness will change periodically depending on amplitude of the flowing electric. Light flickering effect is the result of the different brightness from light source. There are two types of flicker, one is at visible frequency of below 100Hz, and another is at invisible frequency of above 100Hz which is biologically harmful. Following facts are for frequency above 100Hz



Most LED tubes in the market have flicker effect of above 100Hz and invisible to our eyes, however it is detectable with cellphone's camera.

New generation of LED tubes are free from this flicker effect and cannot be detected with cellphone's camera

The impact of flickering light



Brain damaging



Poor eyesight for reading



Migraine



Lower productivity

How to resolve light flickering effect?

Light flickering effect is the brightness changes resulted from the changes of amplitude in electric current flow

KEY
ROOT CAUSE

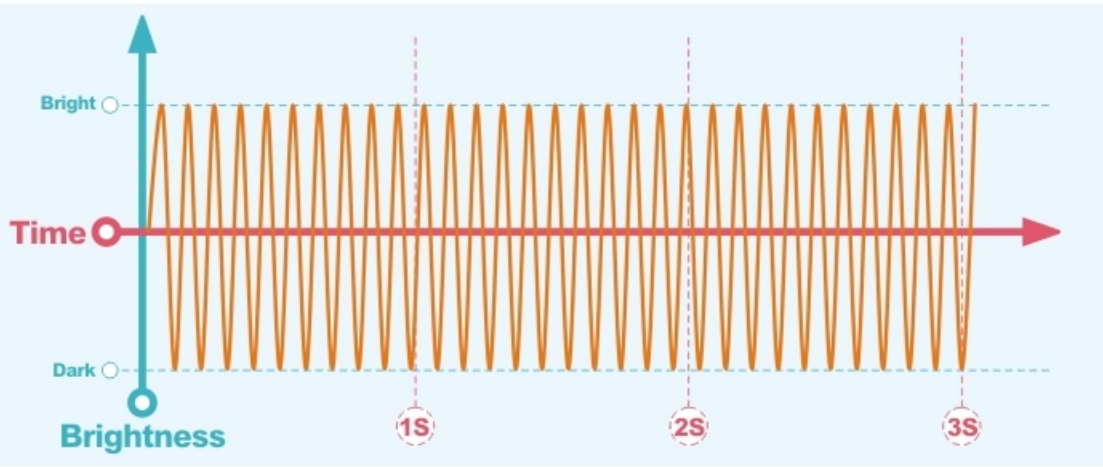
- a) The frequency of the current. Lower frequency cause more distinctive changes in brightness, hence, produce very obvious flicker effect
Solution: Increase the frequency (Diagram A)
- b) The higher amplitude of current, the higher effect is the brightness changes, hence, more obvious flicker effect
Solution: Reduce the amplitude (Diagram B)

**Normal LED Tube
(oscillation diagram
for flicker effect)**



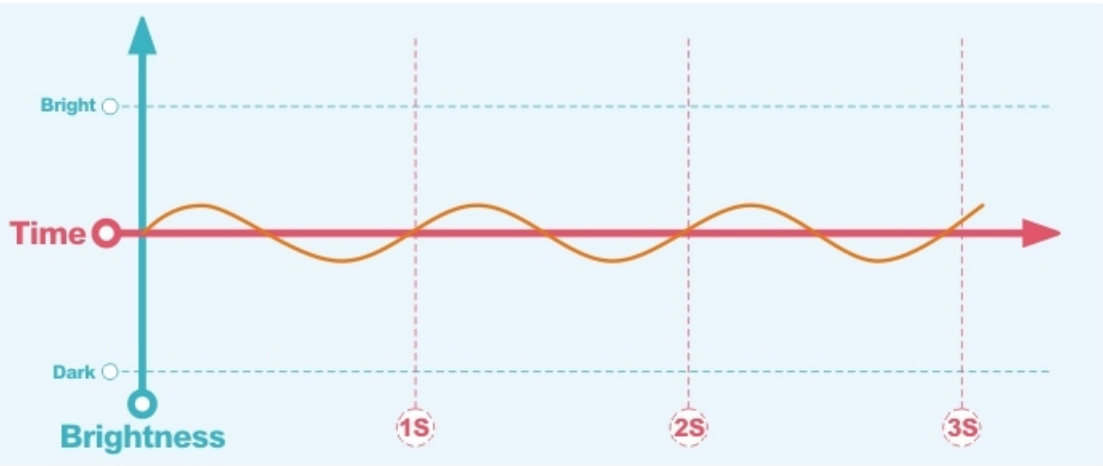
A
Increase frequency
to reduce flicker

Method used by
electronics ballast
for fluorescent tube

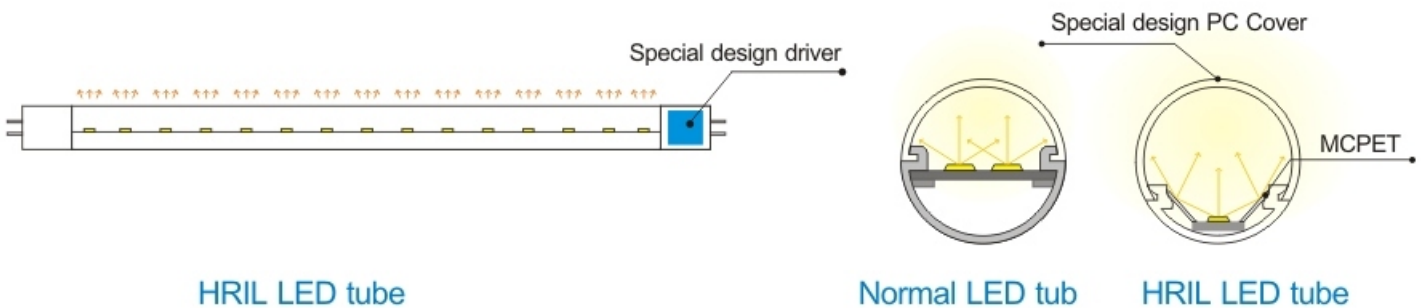


B
Reduce current
amplitude

Method used by new
generation LED



HRIL carried with special design driver which produce flicker free and healthy lighting



The Story of MY LUMENS Brand Name

The name of 'MyLumens' came from the poem "A Quiet Night Thought" (also translated as "Contemplating Moonlight"), written by Li Bai. Li Bai was a Chinese poet acclaimed from his own day to the present as a genius and a romantic figure who took traditional poetic forms to new heights in the Tang Dynasty

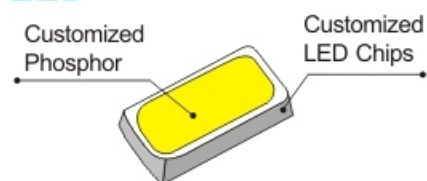
床前	明月光	Moonlight before my bed
疑似	地上霜	Perhaps frost on the ground
举头	望明月	Lift my head and see the moon
低头	思故乡	Lower my head and pine for home

明 Achieving high lumen & efficient light

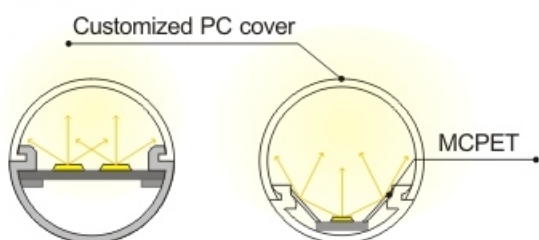
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High efficacy design thru enhanced power supply, special indirect reflection material, LED, and unique PC cover

LED



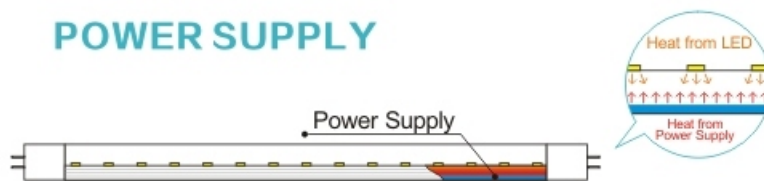
光学结构



Normal LED Tubes

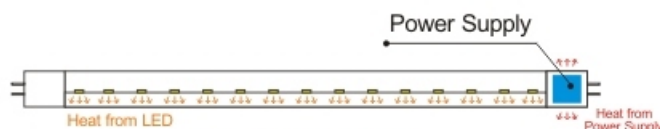
HRIL PC Cover

POWER SUPPLY



Normal LED Tubes

Heat from LED and power supply degrading each other's components



HRIL PC Cover

Separate power from LED, not hot spot, hence components degradation and improve efficacy

月 Warm and smooth lighting bringing the feeling of a home

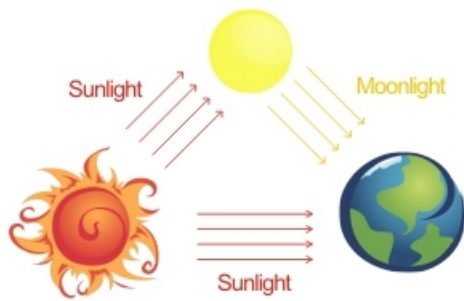
'MY' in MY LUMENS refers to short form of moonlight, also carrying a meaning of 'My'. It gives an impression of 'My Light'. MY LUMENS' mission is to provide good and quality light for the end users



Perfect Life with High Quality of Healthy Light



光 Ensure Quality of light, non glaring and indirect lighting



Glaring sunlight reflected by the moon before reaching the earth



Glaring LED light reflected by the MCPET before reaching the eyes of end users

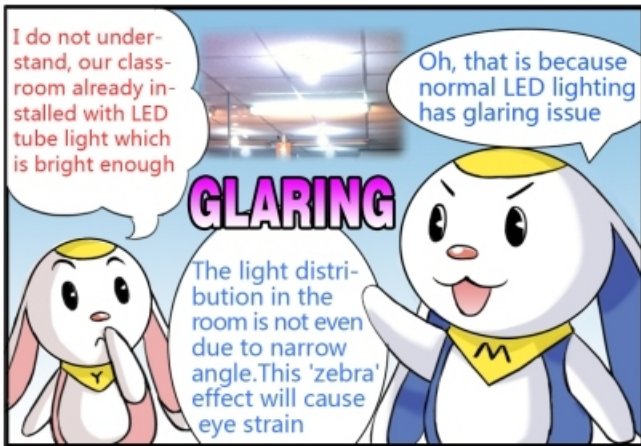




How to resolve led glaring issue



1/2
3/4



5/6
7/8

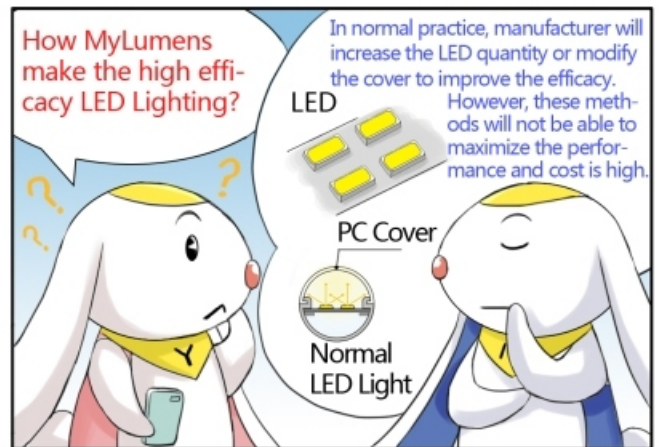
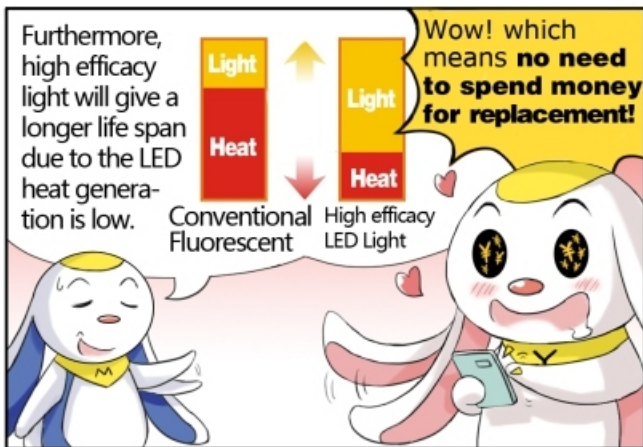
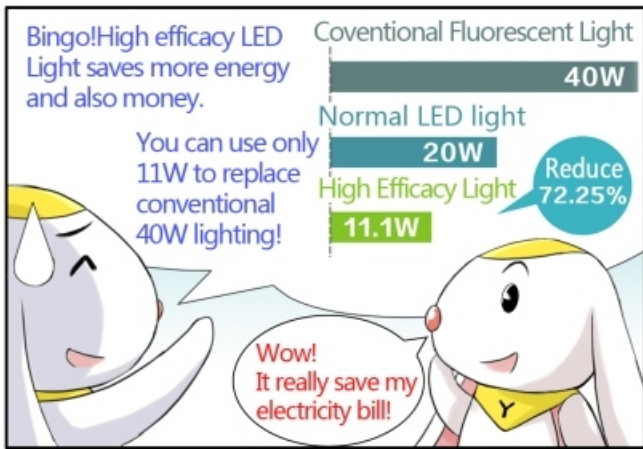




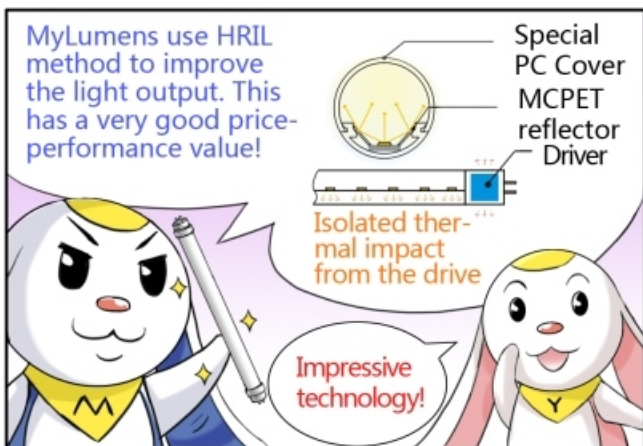
Why everyone is going for High Efficacy



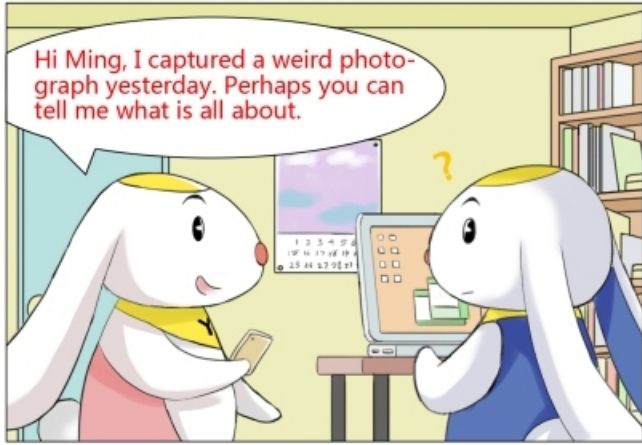
1 | 2
3 | 4



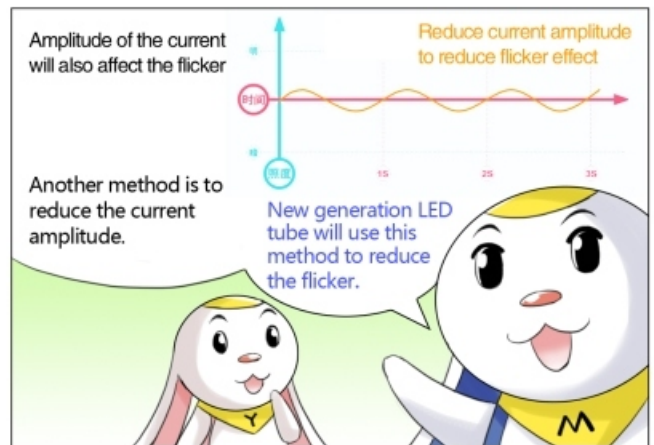
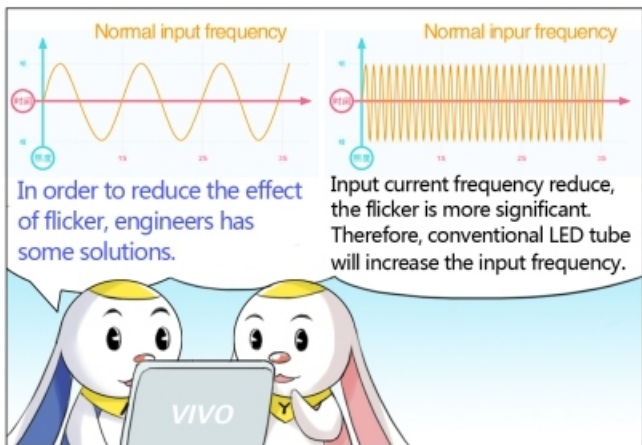
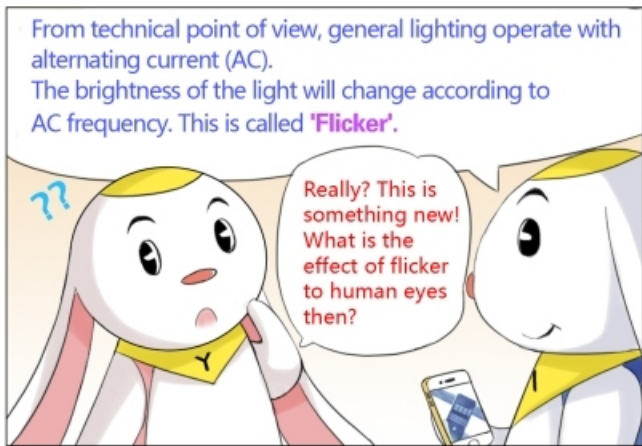
5 | 6
7 | 8



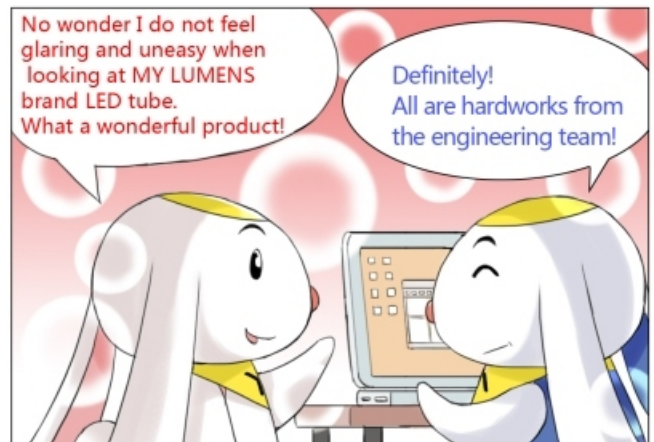
Flickering is damaging!



1 | 2
3 | 4



5 | 6
7 | 8

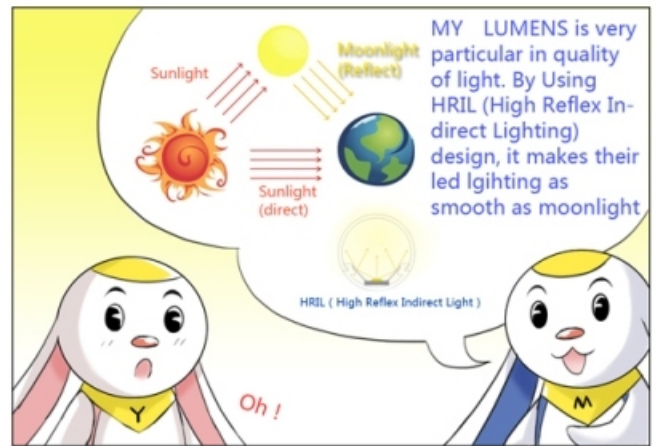




The Story of MY LUMENS Brand Name



1/2
3/4



5/6
7/8





For more details, please visit our website:

<http://www.my-lumens.com>

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Mets Zhang

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