



Version 2.1

VMD

Wave 320

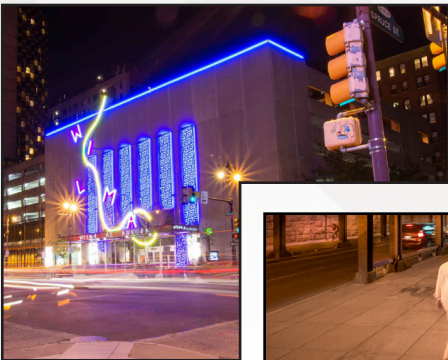
DYNAMIC WHITE

PVC 24V



For More Information

Toll Free: 1 (888) 580-6366



UNITED STATES

Pacific Business Center
1075 American Pacific Dr.,
Ste. A Henderson, NV 89074

CANADA

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Suite 200 Moncton, NB
E1C 4X7

GLLS reserves the right to make any design changes for continuous improvement which will not affect the overall appearance or performance.

www.glls.com
www.ledneonflex.com

Light Dimension 0.63 x 0.67in (16x17mm)

Output W/WW

LED Light Epistar SMD LED Chip

Max Run Length*

Single Feed 32.81ft (10m)

Double Feed 65.62ft (20m)

Light Surface Square profile 320°

Lumen Maintenance 70,000 Hours L70 @ 25°C : 90,000 L50 @ 25°C
50,000 Hours L70 @ 50°C : 70,000 Hours L50 @ 50°C

Electrical

Input Voltage 24V DC

Power Consumption 3.66W/ft (12W/m)

Physical

LED Count 44 LEDs / ft (144 LEDs/m)

LED Spacing 0.55in (13.89mm)

Cutting Unit Length 3.28in (83.3mm)
(12 LEDs)

Thermal Management Free air convection

Fixture Connections End, side & bottom lead wires

Minimum Bend Diameter 11.81in (300mm)
(Top bending only)

Temperature Ranges

Installation 32°F to 140°F (0°C to 60°C)

Operating -13°F to 140°F (-25°C to 60°C)

Humidity 0-95% non condensing

Dependability

Warranty 5 Year Warranty

Safety

Certification Tested to UL & CSA by Underwriters Laboratory for use in USA and Canada, complies with California Title 24 Requirements, Lighting Facts.
Exceeds ANSI C78.377A, CE & RoHS Compliant.

IP Rating IP68 with appropriately rated accessories

*Max Run Length: Unless otherwise stated, snap and seamless run lengths are the same.

Available Colors

Color CCT Wavelength

WW 2460 ± 120K

W 5029 ± 283K

W+WW 3465 ± 245K

Lumen Count

Color Per Foot Per Meter Power

WW >97.54lm >320lm 1.83W/ft (6W/m)

W >97.54lm >320lm 1.83W/ft (6W/m)

W+WW >195.07lm >640lm 3.66W/ft (12W/m)

Light Dimension 0.63 x 0.67in (16x17mm)

Output	W/WW
LED Light	Nichia SMD LED Chip
Max Run Length*	
Single Feed	32.81ft (10m)
Double Feed	65.62ft (20m)
Light Surface	Square profile 320°
Lumen Maintenance	70,000 Hours L70 @ 25°C : 90,000 L50 @ 25°C 50,000 Hours L70 @ 50°C : 70,000 Hours L50 @ 50°C

Electrical	
Input Voltage	24V DC
Power Consumption	3.66W/ft (12W/m)

Physical	
LED Count	44 LEDs / ft (144 LEDs/m)
LED Spacing	0.55in (13.89mm)
Cutting Unit Length	3.28in (83.3mm) (12 LEDs)
Thermal Management	Free air convection
Fixture Connections	End, side & bottom lead wires
Minimum Bend Diameter	11.81in (300mm) (Top bending only)

Temperature Ranges	
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Dependability	
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IP Rating	IP68 with appropriately rated accessories

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Available Colors

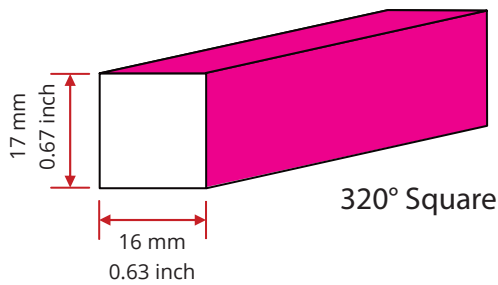
Color	CCT Wavelength
WW	2460 ± 120K
W	5029 ± 283K
W+WW	3465 ± 245K

Lumen Count

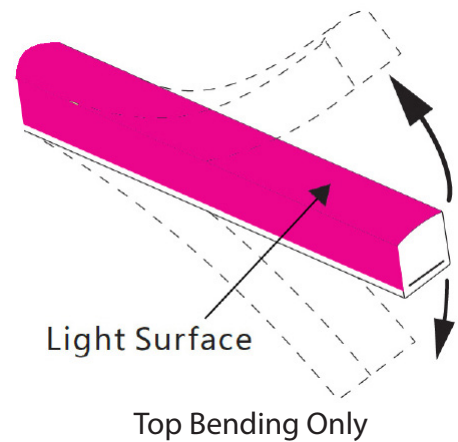
Color	Per Foot	Per Meter	Power
WW	>85.34lm	>280lm	/
W	>85.34lm	>280lm	/
W+WW	>170.69lm	>560lm	3.66W/ft (12W/m)



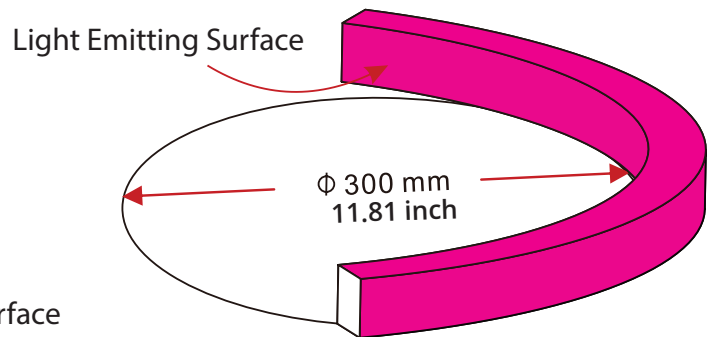
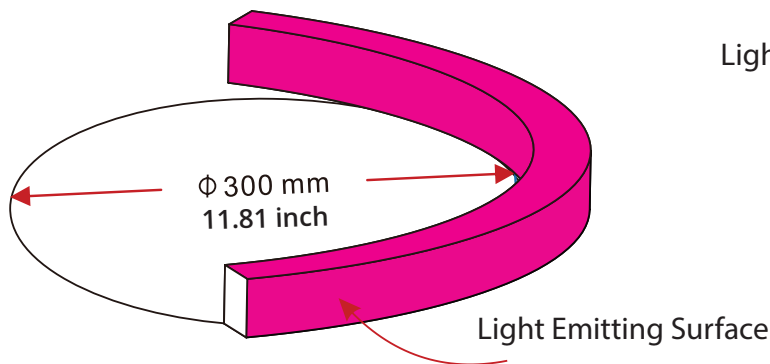
Light Profile



Bending Direction

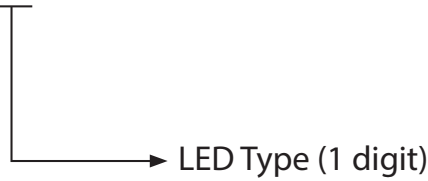


Minimum Bending Diameter



Fixtures

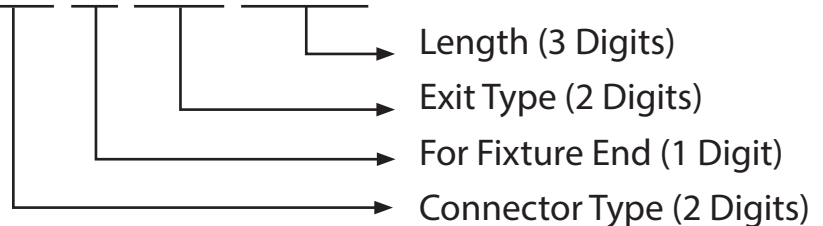
NF-16E-0-03-3W-X-DWH-24DV



LED Type (1 digit)
E - Epistar
N - Nichia

Lead Connector

NA-16E-0-00-3W-XX-X-XX-XXX-S

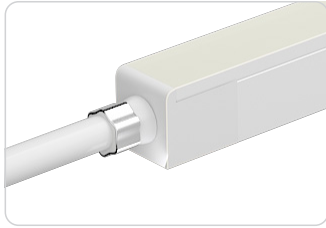


Connector Type (2 Digits)	For Fixture End (1 digit)	Exit Type (2 digits)	Length (3 digits)
SU - Submersible	1 - Input side	EN - End	0M3 - 0.98ft (30cm)
SE - Seamless	2 - Output side	BO - Bottom	01M - 3.28ft (1m)
	0 - Jumpers/T-Feeds/ Seamless (or Submersible) Bottom/Seamless (or Sub- mersible) End	SL - Side left	03M - 9.84ft (3m)
		SR - Side right	05M - 16ft (5m)
		EJ - End jumper	10M - 32.81ft (10m)
		BJ - Bottom jumper	000 - For End Cap
		TF - Power T feed	
		EC - End Cap	

For full part number naming rules, please refer to the document on www.glls.com/support/documentation/

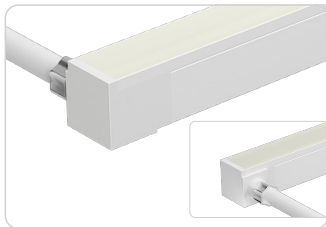
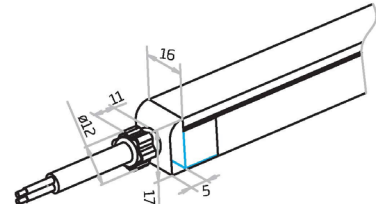
IP67: Rated for wet locations, not submersion. Factory Assembly only.

Seamless



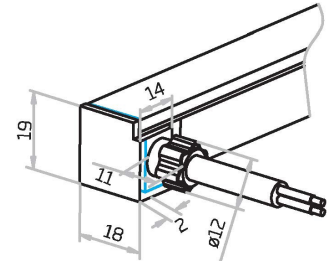
Seamless End Exit

NA-16E-0-00-3W-SE-0-EN-XXX-S



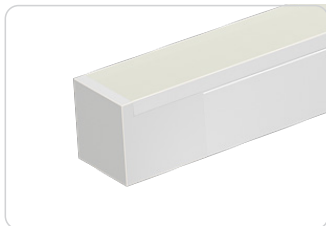
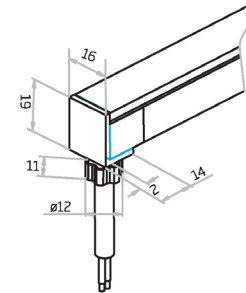
Seamless Side Exit

NA-16E-0-00-3W-SE-1-SL-XXX-S
 NA-16E-0-00-3W-SE-1-SR-XXX-S
 NA-16E-0-00-3W-SE-2-SL-XXX-S
 NA-16E-0-00-3W-SE-2-SR-XXX-S



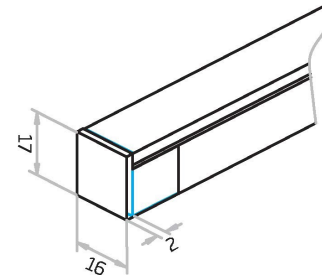
Seamless Bottom Exit

NA-16E-0-00-3W-SE-0-BO-XXX-S



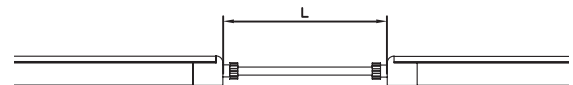
Seamless End Cap

NA-16E-1-00-0W-SE-1-EC-000-P
 NA-16E-1-00-0W-SE-2-EC-000-P



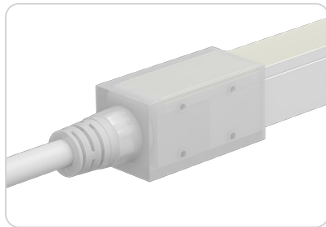
Seamless Jumper

NA-16E-0-00-3W-SE-0-EJ-XXX-S



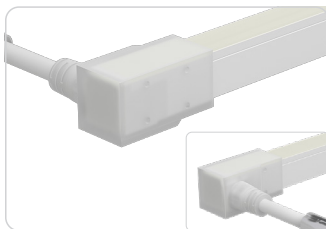
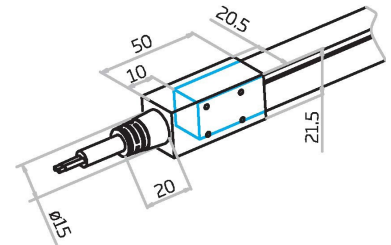
IP68: Submersible. Factory Assembly only.

Submersible Seamless



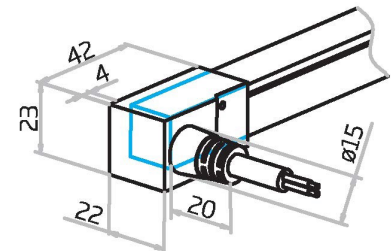
Submersible End Exit

NA-16E-0-00-3W-SU-0-EN-XXX-S



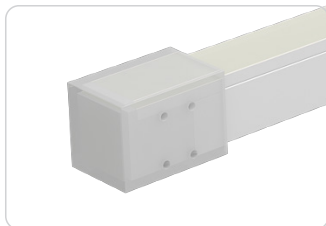
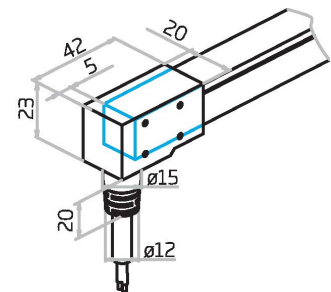
Submersible Side Exit

NA-16E-0-00-3W-SU-1-SL-XXX-S
 NA-16E-0-00-3W-SU-2-SL-XXX-S
 NA-16E-0-00-3W-SU-1-SR-XXX-S
 NA-16E-0-00-3W-SU-2-SR-XXX-S



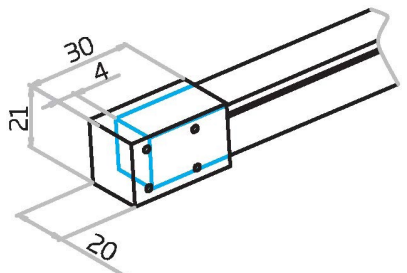
Submersible Bottom Exit

NA-16E-0-00-3W-SU-0-BO-XXX-S



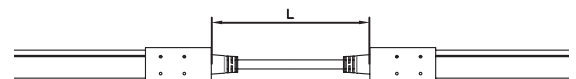
Submersible End Cap

NA-16E-1-00-0W-SU-1-EC-000-P
 NA-16E-1-00-0W-SU-2-EC-000-P



Submersible Jumper

NA-16E-0-00-3W-SU-0-EJ-XXX-S

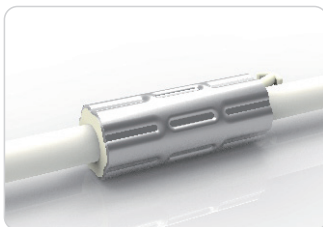
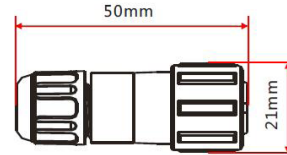


Barrel Connectors

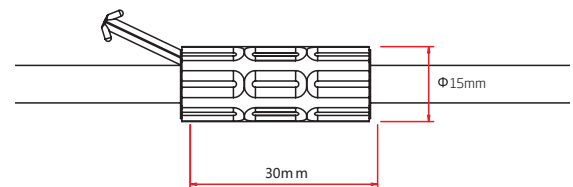


Barrel Connectors

- NA-XX-BC-DC-CXX-F
- NA-XX-BC-DC-CXX-M
- NA-XX-BN-XXA-CXX-F
- NA-XX-BN-XXA-CXX-M
- NA-XX-PL-XXA-CXX-F
- NA-XX-PL-XXA-CXX-M



Anti-Wicking Ferrule



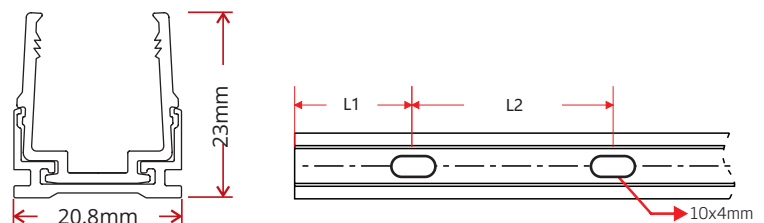
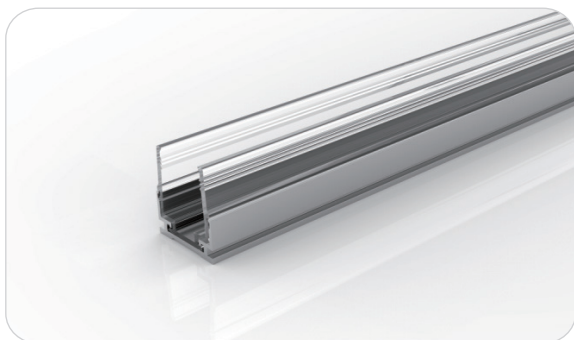
Anvil Cutter

Optional accessory for on-site cutting.

Factory order only

MOUNTING CHANNEL | PVC

Plastic & Aluminum Channel



W x H	Standard Length	Part Number	L1	L2	Screw Hole Φ	Hole #
0.82 x 0.91in (20.8x 23mm)	1.38in (35mm)	CL-16-R-AP-3C5-SD	0.69in (17.5mm)	/	0.39in x 0.16in (10 x 4mm)	1
	19.69in (500mm)	CH-16-R-AP-0M5-SD	1.97in (50mm)	7.87in (200mm)	0.39in x 0.16in (10 x 4mm)	3
	39.37in (1000mm)	CH-16-R-AP-01M-SD	3.94in (100mm)	7.87in (200mm)	0.39in x 0.16in (10 x 4mm)	5
	78.74in (2000mm)	CH-16-R-AP-02M-SD	3.94in (100mm)	7.87in (200mm)	0.39in x 0.16in (10 x 4mm)	10

Certifications

	Testing Organization	Certificate Serial N°	Report Reference
UL 2108	UL	20160726-E360029	E360029-2013
CE-EMC	SGS	SZEM1702001259LMV	SZEM160600421302

Fixture Testing

Optical Testing

Spectrum Analysis	IES LM 79 (Lumen, CCT, CRI, XY, SDCM, Wave 320length)
Photometric Distribution	IES LM 73 (Lumen intensity distribution & Lux diagram)
Lumen Maintenance & Lifetime	IES LM 84 & IES TM28

Temperature Testing

Normal Temperature Test	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
Abnormal Operation Test	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21

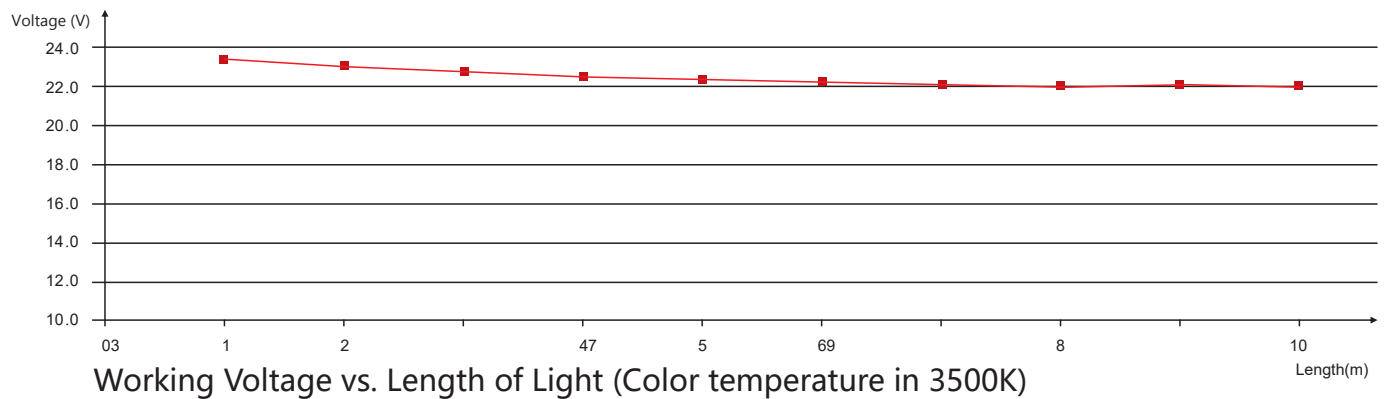
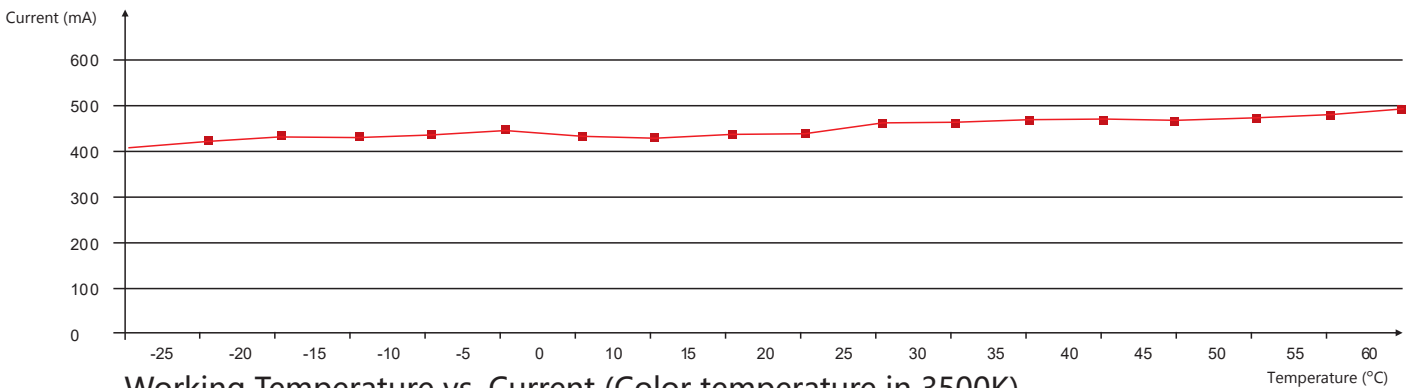
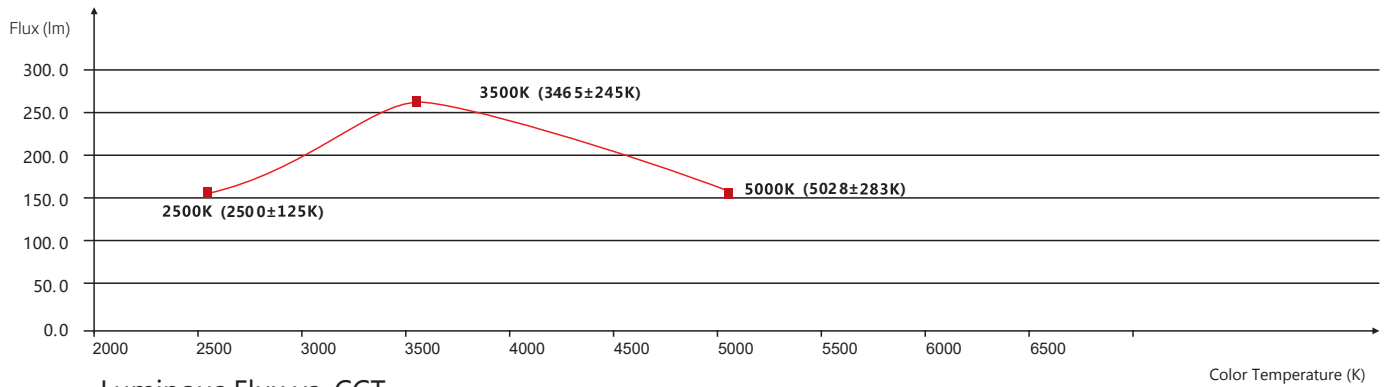
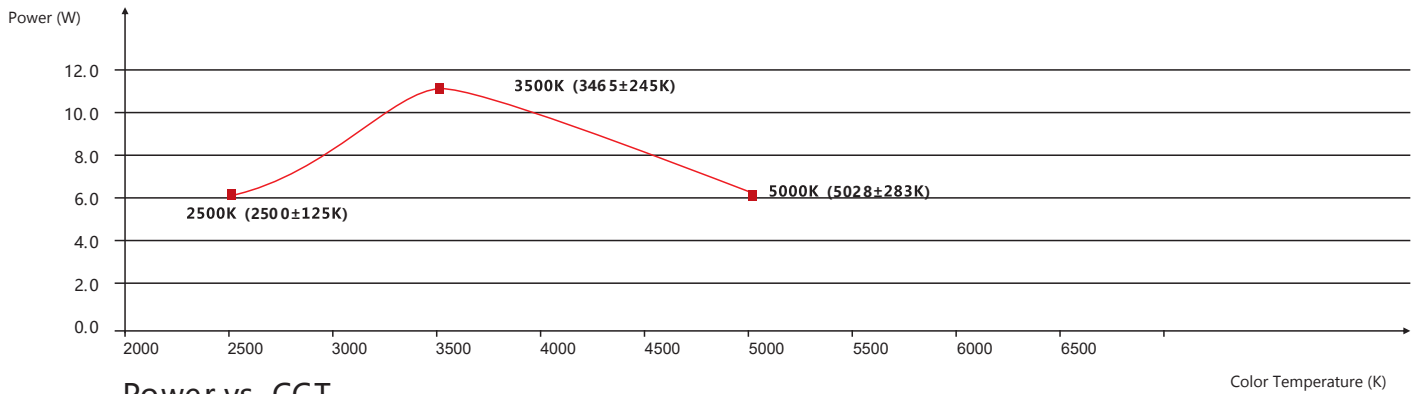
Durability Testing

Bending Test	Manufacturer-defined, 500 cycles
Swing Test	UL2388, >750 cycles
Tensile Test	Manufacturer-defined, > the weight of light in max. connection length double feed
Twist Test	Max connection length double feed Manufacturer-defined, >200 cycles
Ball Impact	UL1598 & UL2388 & IEC60598-1 & IEC60598-2-21
IK07 IK08	IEC62262

Environmental Testing

Chlorinated Water Immersion	BG9667, PH6.8-7.6, free chlorine 0.3-0.6mg/L
Salt Water Immersion	IEC60598-1, Salinity 4%
Salt Spray Test	IEC68-2-11
Outdoor Exposure	Manufacturer-defined
Flame Resistance	UL94
UV Exposure	ASTMG 154, ISO 4892-3, UVA @ 340nm
IPX5, IPX6, IPX7, IPX8	IEC60529
Temperature Shock	Manufacturer-defined, -40°C - 60°C (typical temperature range)
Constant Temperature	Manufacturer-defined

Charts



Charts

ANSI STANDARD

Nominal CCT Categories

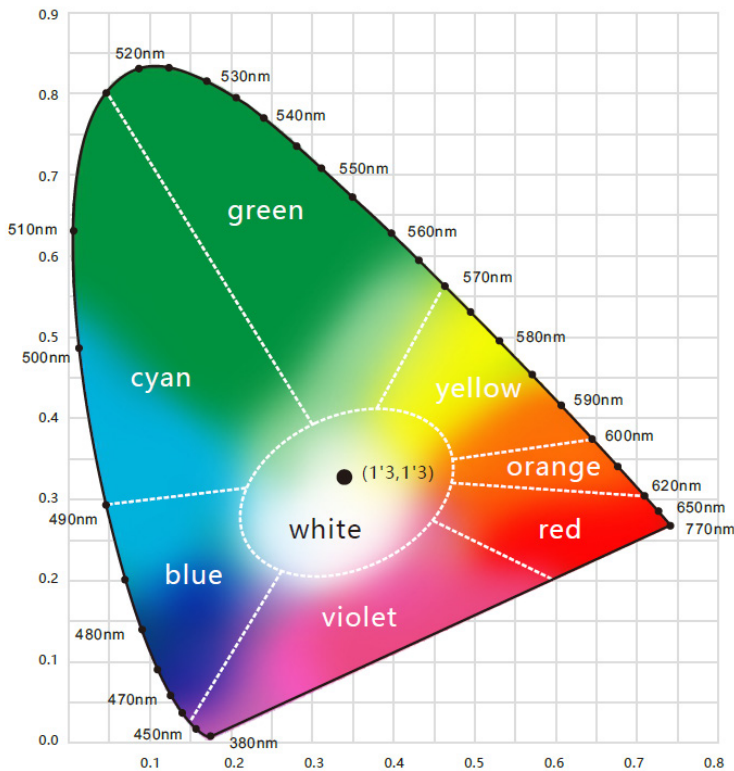
Nominal CCT	Target CCT and tolerance(K)	Target D_{uv}	D_{uv} Tolerance Range
2200K	2238 ±102	0.0000	Tx:CCT of the source
2500K	2460±120	0.0000	For Tx<2870K
2700K	2725 ±145	0.0000	0.000±0.0060
3000K	3045±175	0.0001	For Tx≥2870K
3500K	3465±245	0.0005	$D_{uv}(Tx)±0.0060$
4000K	3985±275	0.0010	where
4500K	4503±243	0.0015	$D_{uv}(Tx)=57700 \times (1/Tx)^2$
5000K	5029±283	0.0020	-44.6 x (1/Tx)
5700K	5667±355	0.0025	+0.00854
6500K	6532±510	0.0031	

Flexible CCT (2200-6500K)	$T_f^{1)} ± \Delta T^{2)}$	$D_{uv} T_f^{3)}$
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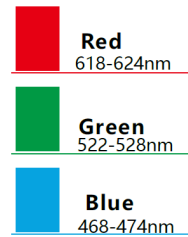
Remark:

- 1) T_f is chosen to be at 100K steps (2300,2400,.....,6400K),excluding the ten nominal CCTs listed in Table 1.
- 2) $\Delta T=1.1900 \times 10^8 \times T^3 - 1.5434 \times 10^4 \times T^2 + 0.7168 \times T - 902.55$
- 3) Same as in the D_{uv} Tolerance Range.

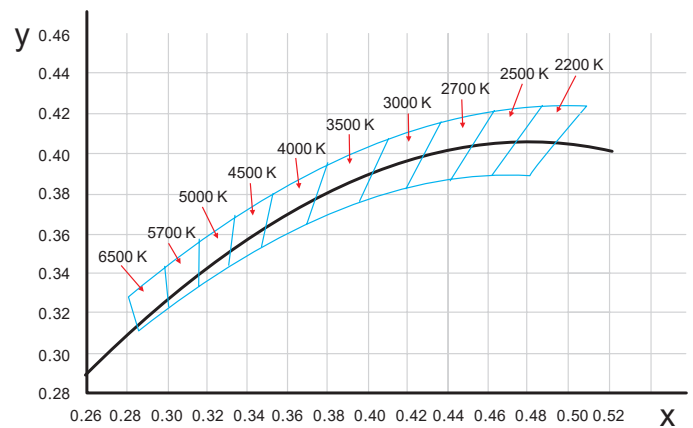
Wavelength of Color Light

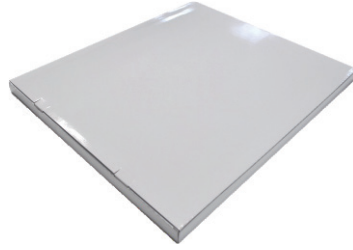
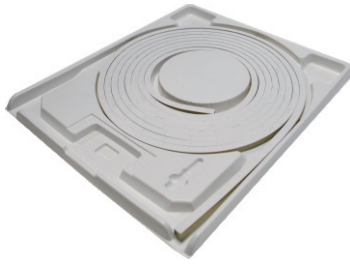


Light Color



(X,Y) Chromaticity Diagram





White Box

Packing Box

Fixture Length	White Box Dimensions	Packing Box Dimensions	# Of White Boxes	Package Weight
196.85in (5m)	15.35x2.05x19.67in (39x5.2x50cm)	20.47x15.34x11.02in (52x41x28cm)	5	30.86lbs (14kg)
393.7in (10m)	20.08x2.05x24.41in (51x5.2x62cm)	25.2x20.87x11.02in (64x53x28cm)	5	57.32lbs (26kg)
393.7in (10m)	20.08x2.05x24.41in (51x5.2x62cm)	25.2x20.87x6.9in (64x53x17.5cm)	3	35.27lbs (16kg)
787.4in (20m)	26.77x2.05x31.1in (68x5.2x79cm)	31.9x27.56x4.92in (81x70x12.5cm)	2	48.5lbs (22kg)