# ADVANCED ENERGY SOLUTIONS







# LIGHT IS LIFE

Lighting says everything about the working environment Lighting is at the heart of the way people think and build.

Modern lighting requires products and services of the highest standards, innovative solutions, technical excellence, design flexibility and consistent performance.

ADVANCED ENERGY SOLUTIONS COMPANY was established to meet the highly growing demands of energy management and energy efficiency,

Either you own small facility or large plant we are here to give you the best solution in the field.

With a talented highly qualified engineering team we are striving to meet the highest standards and technologies to meet all requirement of our costumers.

Our team provide scientifically certified lighting studies

Our collection are manufactured with high quality in a c c o r d a n c e with national/international standards with specifications to meet the harsh climate of the Arab Gulf countries.

We offer a five-years warranty on all of our fixtures, as we design and calculate the body of the fixture in accordance with the LED chip and the driver to ensure the efficiency and quality of the product,

Whether indoor or outdoor fixtures with 50 K hours working life and up 100K hours.





And Up to 100.000 working hours



# **INTRODUCTION** TO LIGHT SCIENCE



Light or visible light is electromagnetic radiation within the portion of the electromagnetic spectrum that can be perceived by the human eye. Visible light is usually defined as having wavelengths in the range of 400-700 nm, between the infrared (with longer wavelengths) and the ultraviolet (with shorter wavelengths).

The main source of light on Earth is the Sun. Historically, another important source of light for humans has been fire, from ancient campfires to modern LED lamps. With the development of electric lights and power system, electric lighting has effectively replaced firelight.

The primary properties of visible light are intensity, propagation . direction, frequency or wavelength spectrum and polarization 002





# CORRELATED COLOR TEMPERATURE CCT



Color temperature defines the color appearance of a white LED. It's measured in the Kelvin unit and is most commonly found between 2200 Kelvin degrees and 6500 Kelvin degrees. a warm light is around 2700K, moving to neutral white at around 4000K, and to cool white, at 5000K or more.

# COLOR RENDERING INDEX CRI



It is a quantitative measure of the ability of a light source to reveal the colors of various objects faithfully in comparison with an ideal or natural light source like sunlight, the CRI of the sunlight is 100, that means if the CRI is close to 100 the colors will be reflected more truly and naturally, the illustration below shows how CRI can affect the appearance of colors.

# MACADAM ELLIPSE



MacAdam ellipse is a region on a chromaticity diagram (CIE 1931) which contains all colors which are indistinguishable, to the average human eye, from the color at the center of the ellipse. Slight color differences in the appearance of LED light are measured in steps, the higher the N-steps, the greater the visual difference between two white light sources

# COLOR RENDERING INDEX CRI



Dimmers are devices connected to a light fixture and used to lower the brightness of light, you can use several different dimming options to dim LED Lighting , as phase cut(triac), 0/1-10v dimming and DALI system, but beware that the driver most support type of dimming you use.

A-Phase Cut(Triac) dimming:

This type of control is a traditional one accomplished without any need for an additional control wires. It involves connecting a dimmer in series between one of the mains wire and the equipment.

#### B-0/1-10v dimming:

The O/1-10V system enables dimming of the brightness from around 10% to 100%. This is done by sending an analogue signal (0/1-10v) to the equipment over an additional two wires control line.

#### C-DALI system:

Digital Addressable Lighting Interface, DALI is a digital and addressable communication interface for lighting systems, Digital signals are transmitted over a bus or two-wire control wire.



# Aluminum Profile for LED Strip





PCB Width	8mm,10mm,12mm	15mm,28mm	24mm,30mm	40mm,56mm
Typical Watt	9.6w/m,14.4w/m,19.2w/m	19.2W,25w/m	28.8w,34w/m	38.4/m,48w/m
LED Qty	60leds,120leds,240leds/m	240leds/m,120leds/m	320leds,360leds/m	480leds/m
Typical Lumen	300-1100LM,1940leds/m	1700-2100LM,2350leds/m	2400-2800LM,4250leds/m	3400-4800leds/m



Cover Type: PC Frost PMMA Milky PC Clear Black

80%





Recessed install surface mounted

35%

96%

nounted Suspended

Suspended Install Wall mounted



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Light Transmittance: 88% Lens beam angle







#### Surface Mounted U-shape Aluminum LED Linear Light

#### ALS-AP1506-1000 Light Source: SMD2835 CRI: RA>80 Voltage: DC 24V CCT: 2200-6500K Lumen:683Im

11.5 15



/laterial:	AL-6063
Surface:	Anodized/Painting   silver/black/whi
PC/PMMA Cover:	Diffuser/Transparent/Milky
Available Length:	1000MM (0.5m-3m Optional)
Application:	Commercial lighting/Indoor lighting









End caps with hole End caps without hole Aluminum profile

Transparent/Diffused/Milky Metal clips cover

# ALS-AP1612-1000

Light Source: SMD2835 CCT: 2200-6500K Lumen:913Im





CRI: RA>80





Material: Surface: PC/PMMA Cover: Available Length: Application:

AL-6063 Anodized/Painting silver/black/white etc. Diffuser/Transparent/Milky 1000MM(0.5m-3m optional) Commercial lighting/Indoor lighting/Decorative design





End caps with hole End caps without hole



Aluminum profile cover

Transparent/Diffused/Milky Metal clips



the second secon

Power

105° 9.6W

CEROHS

# Surface Mounted U-shape Aluminum LED Linear Light

#### LS-AP1708-1002

Light Source: SMD2216 Voltage: DC24V Lumen: 3751m

CRI: RA>90 CCT: 2200-6500K IP Rate: IP40





Material:	AL-6063
Surface:	Anodized/Painting   silver/black/white etc.
PC/PMMA Cover:	Diffuser/Transparent/Milky
Available Length:	1002MM (0.5m-3m optional)
Application:	Commercial lighting/Indoor lighting/Decorative desig





Transparent/Diffused/Milky Metal clips cover



#### LS-AP1013-1000

Light Source: SMD2216 Voltage: DC24V Lumen: 375lm

CRI: RA>90 CCT: 2200-6500K IP Rate: IP40







Material: AL-6063 Surface: PC/PMMA Cover: Available Length:

Application:

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 0.5m-3m

Commercial lighting/Indoor lighting/Decorative design





End caps with hole End caps without hole Aluminum profile

Transparent/Diffused/Milky Metal clips cover







PC clips



Rotatable Bracket



180 degree connector







#### Surface Mounted U-shape Aluminum LED Linear Light

#### ALS-AP1815-1015



CRI: RA>80 Voltage: DC24V IP Rate: IP50





Material: Surface: PC/PMMA Cover: Available Length:

Application:

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1015MM (0.5m-3m optional) Commercial lighting / Indoor lighting/ Decorative design







AL-6063







End caps with hole Aluminum profile End caps without hole

Transparent/Diffused/Milky Metal clips cover

Can be used as COVE Lighting

180 degree connector









Aluminum profile End caps without hole

Transparent/Diffused/ Milky cover

Rotatable Bracket Metal clips



#### Surface Mounted U-shape Aluminum LED Linear Light

#### LS-AP1715-1015

Light Source: SMD2835 CCT: 2200-6500K Lumen:1599Im

CRI: RA>80 Voltage: DC24V IP Rate: IP50





Material:	AL-6063
Surface:	Anodized/Painting   silver/black/white etc.
PC/PMMA Cover:	Diffuser/Transparent/Milky
Available Length:	1015MM (0.5m-3m optional)
Application:	Commercial lighting / Indoor lighting/ Dec







End caps with hole Aluminum profile End caps without hole

Transparent/Diffused/Milky Metal clips cover

LS-AP3535-1005

Light Source: SMD2835 CCT: 2200-6500K Lumen:1513Im

CRI: RA>80 Voltage: DC24V IP Rate: IP50







AL-6063 Material: Surface: PC/PMMA Cover: Available Length: Application:

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1005MM(0.5m-3m)

Commercial lighting/Indoor lighting/Decorative design





End caps without hole Aluminum profile

Transparent/Diffused/Milky Metal clips



120 degree connector Suspended rope











180 degree connector 90 degree connector





Surface Mounted U-shape Aluminium Profile				
AP1807	Dimensions	Installation	Accessories	Lightsource
1000 M	- <u>12.8</u> - <u>17.5</u>		1,Cover:Transparent Milky /Diffused 2,PC end cap 3	6-12mm PCB <15W/m flex LED strips: 3,Stainless clips
AP0812				
1 501			1,Cover:Transparent Milky /Diffused 2,alu end cap 3,pc/al	4-6mm PCB <10W/m flex LED strips: u install channel
AP1414				
	10.1 10		1,Cover:Transparent 3; Milky /Diffused 2,pc/metal end cap	6-10mm PCB <14W/m flex LED strips: Stainless clips
AP2020R				
Trace 🔽 🖢	NOZ 17.6		1,Cover:Transparent Milky /Diffused 2,pc end cap 3,alu i	6-17mm PCB <20W/m flex LED strips:
AP2020S				
AP2017L	N 17.6		1,Cover:Transparent 3,alu Milky /Diffused 2,pc end cap	6-17mm PCB <20W/m flex LED strips: install channel
	C 17.6		1,Cover:Transparent Milky /Diffused 2,pc end cap 3,alu	6-12mm PCB <20W/m flex LED strips: install channel
AP1720				
	30° 12.2 17.1		1,Cover:Transparent 3,pc clips Milky /Diffused 2,pc end cap	6-12mm PCB 20W/m flex LED strips: VS stainless clips
AP1212 IP65 one part extrusion bi-color refrigerator				
7 0	8.5 - 11.7		1,pc end cap 2, stainless clip	6-12mm PCB <20W/m flex LED strips:

# Surface Mounted U-shape Aluminium Profile AP1717 Dimensions Installation 17 7.5 SCHOOLSCE! 12.4 AP2013 20 AP1813 AP3909 the. 26.7 39.1 AP1713 311 - 17.1 -AP1806 flexible bendable profile . 17.7 AP5710W AP2415

23.5

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Milky /Diffused 2,PC end cap 3,Stainless clips



### Recessed W-shape Aluminum LED Linear Light

#### LS-AP1708W-1000







#### Material: Surface: PC/PMMA Cover: Available Length: Application:

12.2 17.1

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1000MM (0.5m-3m optional) Commercial lighting / Indoor lighting/ Decorative design





AL-6063





Metal clips

End caps with hole Aluminum profile End caps without hole

Transparent/Diffused/Milky cover



AL-6063 Anodized/Painting | silver/black/white etc. PC/PMMA Cover: Diffuser/Transparent/Milky Available Length: 1005MM(0.5m-3m optional) Application: Commercial lighting/Indoor lighting/Decorative design



Material:

Surface:



End caps with hole End caps without hole Aluminum profile





# Recessed W-shape Aluminium Profile











1,Cover:Transparent 3,stainless springs <20W/m flex Milky /Diffused 2,PC end cap



# Corner V-shape Aluminum LED Linear Light

#### LS-AP1919D-985

Light Source: SMD2835 CCT: 2200-6500K Lumen:895Im





CRI: RA>80 Voltage: DC24V

IP Rate: IP50

Material Surface: PC/PMMA Cover: Available Length: Application:

AL-6063

Anodized/Painting silver/black/white etc. Diffuser/Transparent/Milky 985MM (0.5m-3m optional) Commercial lighting / Indoor lighting/ Decorative design



End caps with hole End caps without hole

Transparent/Diffused/Milky cover



Material: AL-6063 Surface: PC/PMMA Cover: Available Length: Application:

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1015MM(0.5m-3m optional) Commercial lighting/Indoor lighting/Decorative design





Aluminum profile Transparent/Diffused/Milky Metal clips cover



Power

21W

110°

110°

9

CEROHS



180 degree connector 90 degree connector







### Suspended Aluminum LED Linear Light

#### LS-AP2027S-1010





CRI: RA>80 Voltage: DC24V

Material: Surface: PC/PMMA Cover: Available Length: Application:

AL-6063 Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 985MM (0.5m-3m optional) Commercial lighting / Indoor lighting/ Decorative design









Power 21W

110°

CEROHS

Power

21W

110°

CE

RoHS



End caps with hole Aluminum profile End caps without hole

Transparent/Diffused/ Milky cover

180 degree connector 90 degree connector 120 degree connector



Suspended rope

# LS-AP3030R-1015



CRI: RA>80 Voltage: DC24V IP Rate: IP50



AL-6063



Material: Surface: PC/PMMA Cover: Available Length: Application:

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1015MM(0.5m-3m optional) Commercial lighting/Indoor lighting/Decorative design

cover



End caps without hole





Metal clips



180 degree connector 90 degree connector 120 degree connector

# Suspended Aluminium Profile





AESCO 025

# Suspended Aluminium Profile



# Cabinet & Wardrobe Aluminum LED Linear Light

#### LS-AP2814-1000 Light Source: SMD2835 CRI: RA>80 CCT: 2200-6500K Voltage: DC12V Lumen:853Im IP Rate: IP50 AL-6063 Material: Surface: Anodized/Painting | silver/black/white etc. PC/PMMA Cover: Diffuser/Transparent/Milky 1000MM (0.5m-3m Optional) Available Length: Application: Commercial lighting/Indoor lighting/Decorative design a al 10 End caps with hole End caps without hole Aluminum profile Transparent/Diffused/Milky Metal clips cover LS-AP1528-1000 CRI: RA>80 Voltage: DC24V Light Source: SMD2835 CCT: 2200-6500K Lumen:913Im IP Rate: IP50 14 5 Material: AL-6063 Anodized/Painting | silver/black/white etc. Surface: PC/PMMA Cover: Diffuser/Transparent/Milky Available Length: 1000MM(0.5m-3m optional)

Commercial lighting/Indoor lighting/Decorative design





Aluminum profile End caps with hole End caps without hole

Application:

Transparent/Diffused/Milky Metal holder cover











Metal hanger



# Waterproof Aluminum LED Linear Light & Profile

#### LS-WAP1815-1015

Light Source: SM5050 Voltage: DC24V Lumen: 867lm

CRI: RA>80 CCT: 2200-6500K IP Rate: IP65



AL-6063 Material: Surface: Anodized/Painting | silver/black/white etc. PC/PMMA Cover: Diffuser/Transparent/Milky Available Length: 1015MM (0.5m-3m optional) Application: Commercial lighting/Indoor lighting/Decorative design





114.5° Power 14.4W СС Вонз

T connetor and spliter connector, multiple output customized



# Ground Recessed Aluminium LED Linear Light

#### LS-AP2211W-1010

Light Source: SMD2835 CCT: 2200-6500K Lumen:768Im

CRI: RA>80 Voltage: DC12V IP Rate: IP65





Material:	AL-6063
Surface:	Anodized/Painting   silver/black/white etc.
PC/PMMA Cover:	Diffuser/Transparent/Milky
Available Length:	1000MM (0.5m-3m Optional)
Application:	Commercial lighting/Indoor lighting/Decorative design





End caps with hole End caps without hole Aluminum profile

Diffused/Milky cover

#### LS-AP2227-1010

Light Source: SMD2835 CCT: 2200-6500K Lumen:973Im

CRI: RA>80 Voltage: DC12V IP Rate: IP65





Material: AL-6063 Surface: PC/PMMA Cover: Available Length: Application:

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1000MM (0.5m-3m Optional) Commercial lighting/Indoor lighting/Decorative design





End caps with hole End caps without hole Aluminum profile

Diffused cover

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# Stair Nose Mounted Aluminium LED Linear Light

#### LS-AP6528-1000

Light Source: SMD2835 CCT: 2200-6500K Lumen:669Im CRI: RA>80 Voltage: DC12V IP Rate: IP65



Material: Surface: PC/PMMA Cover: Available Length: Application: AL-6063 Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1000MM (0.5m-3m Optional) Commercial lighting/Indoor lighting/Decorative design







Power <14.4W CE Rohs

105°

LS-AP6529-1000 Light Source: SMD2835

CCT: 2200-6500K

Lumen:776Im

CRI: RA>80 Voltage: DC12V IP Rate: IP65

64.27 R



Material: Surface: PC/PMMA Cover: Available Length: Application: AL-6063

Anodized/Painting | silver/black/white etc. Diffuser/Transparent/Milky 1000MM (0.5m-3m Optional) Commercial lighting/Indoor lighting/Decorative design





# Wall Mounted Aluminium Profile



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# Constructional Plaster Dry Wall Aluminum Profile



Matching LED strips: 6-10mm wideth LED strips, <20W/m.



DW14346





6-12mm PCB <15W/m flex LED strips:

# Big Size Suspended LED Linear Fixture

#### AP5575

Up & down linear light Intriduction

\* LED Chip: Epistar 2835SMD, LM 80

\* Used for suspension lighting, Light up and down

\* Can be dimmable(Triac, 0-10V, Dali dimmable optional) \* Warranty: 3 years(5 years optional)



Parameter:

Model	AP5575-09	AP5575-12	AP5575-15	
Watt	38W	50W	70W	
Input	AC110-240V 50~60Hz,THD<9%,PF>0.9			
LED Type	144pcs 0.2W	192pcs 0.2W	288pcs 0.2W	
Cover:	Milky / Forst / Transpa	arent		
CCT:	WW 2800-3200K,NW 4000-4500K,CW 6000-6500K CRI>80Ra			
Lamp Housing color:	White/Silver/Black(op	otional) Anodized Oxic	dation	
Installation:	Suspended (Brown/L	, blue/N, yellow, greer	n/G)	
Luminous Flux:	3400-3600LM	3700-4000LM	5700-6000LM	
Beam angle:	120degree			
Working ambient:	-20- +70°C, IP50			





Note: The curves indicate the illuminated area and the average illumination when the luminaire is at the different distance

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# Linear Fixture Acessory

# Constant Current PCB for higher Luminous Efficiency





Light Source: SMD2835 LED quantity: 160pcs/m CRI: >RA80 Power: 16.6W/m CCT: 2600-6500K Lumen: 2648lm/m Voltage: DC24V PCB Width: 12mm



# SMD2835-320

Length: 2.5m Light Source: SMD2835 LED quantity: 320pcs/m CRI: >RA80 Power: 33.3W/m CCT: 2600-6500K Lumen: 4971lm/m Voltage: DC24V PCB Width: 30mm



#### SMD2835-320

Length: 2.5m Light Source: SMD2835 LED quantity: 320pcs/m CRI: >RA80 Power: 33.3W/m CCT: 2600-6500K Lumen: 5140lm/m Voltage: DC24V PCB Width: 24mm

#### SMD2835-480

Length: 2.5m Light Source: SMD2835 LED quantity: 480pcs/m CRI: >RA80 Power: 40W/m CCT: 2600-6500K Lumen: 6030lm/m Voltage: DC24V PCB Width: 40mm

#### SMD2835-72pcs-20

Length unit:560mm Light source:SMD2835 LED Q'ty :72pcs/module Cri:>80Ra Power:13W/module CCT:2600-6500K Lumen: 1590@3000K@80Ra Voltage:32-37V Pcb width:20mm Max length:4pcs

#### SMD2835-144pcs-40

Length unit:560mm Light source:SMD2835 LED Q'ty :144pcs/module Cri:>80Ra Power:26W/module CCT:2600-6500K Lumen:3211@3000K@80Ra Voltage:32-37V Pcb width:40mm Max length:4pcs





Accessories of pendant mounted













"T" form Connect method

Mounting clip

T connector

"X" form Connect method



#### SMD2835-36pcs-20 Length unit:280mm

Light source:SMD2835 LED Q'ty :36pcs/module Cri:>80Ra Power:6.5W/module CCT:2600-6500K Lumen:800@3000K@80Ra Voltage:32-37V Pcb width:20mm Max length:8pcs

#### SMD2835-72pcs-40

Length unit:280mm Light source:SMD2835 LED Q'ty :72pcs/module Cri:>80Ra Power:13W/module CCT:2600-6500K Lumen:1561@3000K@80Ba Voltage:32-37V Pcb width:40mm Max length:8pcs

Constant Voltage PCB for easier&longer joint













Accessories of ceiling mounted



"X" form Connector



Accessories of LED lens for led linear



IL connector



Aluminium profile + Anti-glare cover



Driver



# Big Size Recessed Aluminium Profile





### **INGRESS PROTECTION**

IP Ratings are an international numeric classification to indicate the degrees of protection provided by enclosures for electrical equipment against water and solid object accordance with IEC 60598-1:2003.

### **IPXX**

	0	No protection against contact and ingress of objects		0	No protection against ingress of water
900	1	Protected against solid objects Ø>50 mm and greater, such as the back of a hand	0	1	Protected against dripping water; vertically falling drops shall have no harmful effect on the device when mounted in a normal position.
	2	Protected against solid objects Ø>12.5 mm and greater, such as Fingers or similar objects	D	2	Protected against dripping water; vertically falling drops shall have no harmful effect on the device when the en- closure is tilted at an angle of 15° from its normal position
90	3	Protected against solid objects Ø>2.5 and greater, such as tools, thick wires, etc.	1	3	Protected against water falling as a spray at any angle up to 60° from the vertical line.
§ <b>°</b>	4	Protected against solid objects Ø>1 mm and greater, such as wires, large ants etc.	1	4	Protected against splashing water; water splashed against the enclosure from any direction shall have no harmful effect.
0	5	Dust protected, ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment.	-0-	5	Water projected by a nozzle (6.3 mm) under 30kPa pres- sure at distance of 3 meter from any direction shall have no harmful effects
0	6	Dust-tight, no ingress of dust; complete protection against dust (dusttight).	Ŋ	6	Water projected in powerful jets (12.5 mm) under 100kPa pressure at distance of 3 meter from any direction shall have no harmful effects.
				7	protected against the effects of temporary immersion of water; no harmful effect is possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 meter maximum of submersion).
				8	The equipment is suitable for continuous immersion in water as per the conditions specified by the manufactur-

#### IMPACT PROTECTION

IK Ratings are an international numeric classification to indicate the degrees of protection provided by enclosures against external mechanical impacts in accordance with IEC 62262:2002 and IEC 60068-

ed from

ped from

ped from

ped from

ped from

#### IKXX

00	No protection	06	Protected against 0.25kg mass of impact dropp 400mm above the impacted surface.
01	Protected against 0.25kg mass of impact dropped from 56mm above the impacted surface.	07	Protected against 0.5kg mass of impact drop 400mm above the impacted surface.
02	Protected against 0.25kg mass of impact dropped from 80mm above the impacted surface.	08	Protected against 1.7kg mass of impact drop 300mm above the impacted surface.
03	Protected against 0.2kg mass of impact dropped from 140mm above the impacted surface.	09	Protected against 5kg mass of impact drop 200mm above the impacted surface.
04	Protected against 0.25kg mass of impact dropped from 200mm above the impacted surface.	10	Protected against 5kg mass of impact drop 400mm above the impacted surface.
05	Protected against 0.25kg mass of impact dropped from 280mm above the impacted surface.		

#### **REFERENCE STANDARDS**

• SASO 2902	Energy efficiency, for lighting produc
• SASO 2927:2019	Energy efficiency f for lighting produc
• IES 610000-3-2	Electromagnetic co harmonic current e per phase)
• IEC 62471	Photo biological Sa
• IEC TR 62778	Application of 624 light)
• IEC 60598-1/2017	Luminaires - Part 1
• IEC 61547:2009	Equipment for gen requirements
• IEC 61643-11:2011	Low-voltage surge tective devices cor Requirements and
• IES LM-79-08	Electrical and phot lighting products.
• IES LM-80-08	Measuring lumen n
• IES LM-82-12	Method for charact grated LED lamps the temperature.
• IES LM-84-14	Measuring Lumino Lamps, Light Engir
• ISTMT	In-SITU Temperatu
• IES TM21-11 es	Projecting long term
• IES TM28-14	Projecting long-ter lamps and luminai
• IEC 60529:2013	Degrees of protect
• ISO 9227:2017	Corrosion tests in a
<ul> <li>ISO 4628-2:2016</li> <li>ings</li> <li>intensty.</li> </ul>	Paints and vamish Designation

functionality and labeling requirements cts (part 2).

functionality and labeling requirements cts-part 3: Street lighting

ompatibility (EMC) - Part 3-2: Limits for emissions (equipment input current 16 A

afety of Lamps and Lamp Systems

71 to light sources and luminaires (blue

General requirements and tests.

eral lighting purposes - EMC immunity

e protective devices - Part 11: Surge pro nnected to low-voltage power systems test methods

cometric measurements of Solid State

maintenance of LED Light sources.

terisation of LED light Engines and Inte for Electrical properties as a function of

ous Flux and Color Maintenance of LED nes, and Luminaires.

re Measurement Testing

n lumen maintenance of LED light sourc

rm luminous flux maintenance of LED res

tion provided by enclosures (IP Code)

artificial atmospheres Salt spray tests.

es - Evaluation of degradation of coatof quantity and size of defects, and of

# OUR PRODUCTS BRING EXCELLENCE TO THE MOST FUTURISTIC ARCHITECTURE AND INTERIOR DESIGN IN THE KINGDOM



CATALOGUE 1.1

# **Advanced Energy Solutions**

#### **Head Quarter**

6556 Salah Ad Din Al Ayyoubi Rd-Al Malaz Dist. Unit No 6583 Riyadh 12627 - 4901 Kingdom of Saudi Arabia Tele: + 966 11 472 9999 www.aesco.com.sa

#### **Riyadh Sales Office**

8534 King Abdul Aziz RD As Sulaimaniyah Riyadh 12245-3835

#### **AESCO Plant**

11564 Al Kharj Rd Industrial Gate City Riyadh Kingdom of Saudi Arabia