



Understanding Dark Skies

To promote energy conservation, reduction of carbon emissions, public safety, and astronomical research capabilities many countries have enacted “dark skies” legislation. There are a few authoritative voices lighting manufactures need to consider when developing products to control light pollution.

Dark Sky Approval requirements per the International Dark-Sky Association:

- There is an uplight allowance of 0.5% of total output or 50 lumens; whichever is lower, with no more than 10 lumens in 90-100 degree UL zone. Allowable uplight as a byproduct of the structure and not the source, i.e. the fixture is fully shielded
- Luminaires are required to have fixed mounts to ensure they are mounted as photometered. There can be up to + or- 10 degree adjustment for leveling if needed
- Luminaires must have dimming capability to 10% of full rating
- Light sources shall have a maximum correlated color temperature of 3000K

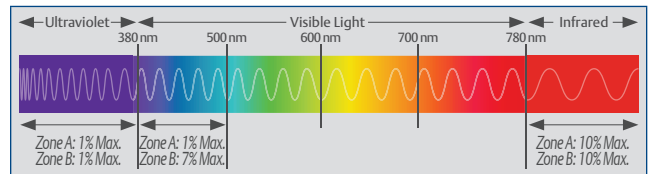
Light pollution friendly refers to product lines where Dark Sky Approval photometric requirements are met:

- The fixture design, provides additional mounting flexibility that is outside of the compliant +/-10% leveling allowed.
- The fixture should be installed facing downward.

Chile Zoning Compliance per the Ministry of Environment (MMA):

- There is an uplight allowance of 0.0% at 90 degrees.
- Luminaires must be installed looking down, unless a visor is provided. Installation with a visor should be at a 50-degree angle maximum.
- Depending on the application Zone, the below blue light requirements must be met.
 - Zone A (special protection area such as astronomy and biodiversity): Maximum content of visible blue spectrum to be 1%
 - Zone B (Other areas): Maximum content of visible blue spectrum to be 7%

Light Spectrum | Chile Zone A & B










Different types of light pollution and how they can be minimized

	Pollution Type	Issue	Solution
	Glare	Unshielded lighting is too bright that it effects the field of vision; can decrease visual acuity and causes eye fatigue.	Use warmer correlated color temperature lighting solution that aims lights downwards. Use reflectors or visors if necessary.
	Light Trespass	Light is distributed to areas where is it not needed or wanted.	Use fixtures in a downward fixed position with reflectors or visors to direct light down to the area required only.
	Clutter	Light fixtures are placed too close together creating brighter area of concentrated light.	Use photometric simulation to determine lowest lumen output required, minimum number of fixtures and placement of fixtures to avoid over lighting an area.
	Sky Glow	When the combination of all the reflected light and upward-directed (unshielded) light escapes up into the sky. It is a combination of light trespass and clutter.	Aim lights downwards, instead of wasting light by directing it above the horizontal plane. Shielding the light source will minimize glare and light trespass.

Understanding Dark Skies | Appleton™ LED Series Luminaires by Emerson

As an industry leader and a corporate citizen in our communities, Emerson seeks to improve quality of life, reduce the impact of our operations and products on the environment, and leave the planet in a better place for future generations. Our environmental stewardship is reflected in the design of our Appleton LED luminaires. The below models are either Dark Sky Approved, Chile Zoning Compliant, or Light Pollution Friendly. Refer to product series catalog pages for detailed product specifications and Catalog Numbering Guide; available on www.masteringled.com/smartled.

		IDA Dark Sky Approved	Light Pollution Friendly	Chile Zoning Compliant	Class I, Division 2	Class II, Division 1	Class II, Division 2	Class III	Zone 2	Zone 20	Zone 21	Zone 22	Wet Locations	Marine Outside Type	ABS Certified	NOM	Type 3R	Type 4	Type 4X	IP66	IP67	IK08	IK10
Mercmaster™ LED Generation 3 Series Luminaires Lumen Output: 3,200 to 26,070																							
	Hazardous Model	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model	•	•											•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • IDA Dark Sky Approved: [I]MLG[A/B/C/D/R/W]xxxW[P/D/G]5Bxxx with MMVISOR accessory • Light pollution Friendly: [I]MLG[T/K/U/X]xxxW[P/D/G]xBxxx with MMVISOR accessory 																							
Mercmaster™ LED Low Profile Series Luminaires Lumen Output: 2,800 to 7,500																							
	Hazardous Model	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model	•	•	•										•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • IDA Dark Sky Approved: [I]MLLED[A/B/C/D/R/W] xxW[P/D/G]5Bxxx with MMVISOR accessory • Light pollution Friendly: [I]MLLED[T/K/U/X] xx[A/S/W] [P/D/G]5Bxxx with MMVISOR accessory • Chile Zoning compliant Zone A: [I]MLLEDxxxA [P/D/G]5Bxxx with local Visor accessory ① • Chile Zoning compliant Zone B: [I]MLLEDxxx[A/S][P/D/G]5Bxxx with local Visor accessory ① 																							
Contender™ LED Series Luminaires Lumen Output: 3,300 to 5,500																							
	Hazardous Model	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model	•	•											•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • IDA Dark Sky Approved: [I]VMV[3L/4L/5L]W[P5/D5/G5]xxx with MMVISOR accessory 																							
Rigmaster™ LED Linear Series Luminaires Lumen Output: 3,890 to 7,650																							
	Hazardous Model	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model	•	•											•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • IDA Dark Sky Approved: [I]RM[A/B/L][2/4][1/2]W[D/P/L] [BU/BH][N/H/E]G[W/T] [Blank/1/2] with [I]RMPENDKIT/[I]RMHPENDKIT • Light Pollution Friendly: [I]RM[A/B/L][2/4][1/2]W[D/P/L] [BU/BH][N/H/E]G[W/T] [Blank/1/2] 																							
Areamaster™ Generation 2 LED Luminaires Lumen Output: 5,950 to 37,500																							
	Hazardous Model		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model		•	•										•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • Light Pollution Friendly: [I]AMLG[L6/L7/L8]W[G/F/D][6/7][BU/BH][F/S/M] with AMLGV Visor accessory or [I]AMLH[L1/L2/L3]W[G/F][3/5/6/7][BU/BH][F/S/M] with AMLHV Visor accessory • Chile Zoning Compliant Zone A: [I]AMLG[L6/L7/L8]A[G/F/D][6/7][BU/BH][F/S/M] or [I]AMLH[L1/L2/L3]A[G/F][3/5/6/7][BU/BH][F/S/M] with local Visor accessory ① • Chile Zoning Compliant Zone B: [I]AMLG[L6/L7/L8][A/S][G/F/D][6/7][BU/BH][F/S/M] or [I]AMLH[L1/L2/L3][A/S][G/F][3/5/6/7][BU/BH][F/S/M] with local Visor accessory ① 																							
Areamaster™ Connect LED Luminaires Lumen Output: 5,950 to 37,500																							
	Hazardous Model		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model		•	•										•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • Light Pollution Friendly: [I]AMLC[L6/L8]W[G/F/D][6/7][BU][F/S/M] with AMLGV Visor accessory or [I]AMLC3W[G/F][3/5/6/7][BU][F/S/M] with AMLHV Visor accessory • Chile Zoning Compliant Zone A: [I]AMLC[L6/L8]A[G/F/D][6/7][BU][F/S/M] or [I]AMLC3A[G/F][3/5/6/7][BU][F/S/M] with local Visor accessory ① • Chile Zoning Compliant Zone B: [I]AMLC[L6/L8][A/S][G/F/D][6/7][BU][F/S/M] or [I]AMLC3[A/S][G/F][3/5/6/7][BU][F/S/M] with local Visor accessory ① 																							
Baymaster™ LED Luminaires Lumen Output: 5,950 to 37,500																							
	Hazardous Model		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Industrial Model		•	•										•	•	•	•	•	•	•	•	•	•
<ul style="list-style-type: none"> • Light Pollution Friendly: [I]BLL[Blank/P][L6/L7/L8]W[G/F/D][A/M/W]N[BU/BH][F/S/M] or [I]BHL[Blank/P][L1/L2/L3]W[G/F][V/N/M/W]N[BU/BH][F/S/M] • Chile Zoning Compliant Zone A: [I]BLL[Blank/P][L6/L7/L8]A[G/F/D][A/M/W]N[BU/BH][F/S/M] or [I]BHL[Blank/P][L1/L2/L3]A[G/F][V/N/M/W]N[BU/BH][F/S/M] with local Visor accessory ① • Chile Zoning Compliant Zone B: [I]BLL[Blank/P][L6/L7/L8][A/S][G/F/D][A/M/W]N[BU/BH][F/S/M] or [I]BHL[Blank/P][L1/L2/L3][A/S][G/F][V/N/M/W]N[BU/BH][F/S/M] with local Visor accessory ① 																							

① Contact your local Appleton Sales Representative for details about ordering Chile Zoning Compliant luminaire with local Visor accessory.