

NIGHTTIME™ FRIENDLY LIGHTING



Nighttime Friendly designates products with superior optical control that are consistent with the goals of USGBC LEED® and meet Green Globes™ product criteria for light pollution reduction. These products are full cutoff and no more than 10% of the lumens from the luminaire are emitted above 80 degrees from nadir.

Acuity Brands – Nighttime Friendly™ Designation

For years, Acuity Brands has been actively involved in developing products and standards focusing on minimizing the impact of electric lighting systems of the nighttime environment. Our brands are members and contribute to the International Dark-Sky Association (IDA) and we are active in various outdoor lighting committees of the Illuminating Engineering Society (IESNA). We are a member of the IDA / IESNA Model Lighting Ordinance task group. We are a member of the US Green Building Council and provide a variety of lighting solutions focused on achieving the LEED credit S58 for light pollution reduction. Acuity Brands has some of the most experienced and knowledgeable optical designers working with our product development teams to continue to develop responsible lighting solutions.

What does Nighttime Friendly Mean?

Because there are no lighting industry standards recognizing products that minimize obtrusive nighttime lighting, Acuity Brands has established a designation with very strict requirements, based on photometric test data. Our Nighttime Friendly designation requires that the lighting product has no uplight and no more than 10% of the total lumens between 80-90 degrees. This criterion is consistent with LEED and Green Globes guidelines for environmental sustainability. Our Nighttime Friendly designation focuses on no uplight as well as high angle brightness and requires laboratory test data based on IESNA standards. The Acuity Brands Conyers lab is NVLAP accredited, an accreditation that requires a strict quality process and 3rd party audit by the National Institute of Standards & Technology (NIST). Independent labs have not gained this accreditation.

How does Nighttime Friendly compare with other designations?

IDA Fixture Seal of Approval

The IDA Fixture Seal of Approval does not have specific, quantifiable criteria. In general, the IDA Fixture Seal of Approval focuses on products that have no uplight. Since Acuity Brands Nighttime Friendly designation is more stringent and can be verified with any commercial software, we typically do not list products with IDA.

Star View™ Compliant

Hubbell Outdoor and Spaulding brands of lighting products promote the Star View Compliant designation, used to identify full cutoff optics. This designation is not as stringent as the Acuity Brands Nighttime Friendly designation because it does not stipulate a limit on the high angle lumens that impact glare.

Are there other considerations for minimizing obtrusive outdoor lighting?

Daytime and nighttime aesthetics

Beyond considerations of uplight, there are other optical considerations to help you select a quality lighting system. Many times, the lighting system must offer both daytime and nighttime aesthetics. Traditionally, this required lighting systems that emitted a significant portion of light into the sky and emit light at high angles resulting in glare. We offer many options to address the need for daytime and nighttime aesthetics.

Light trespass

Another key aspect to consider is limiting the amount of light emitted off of the property that trespasses onto adjacent properties. This is especially important in areas where commercial and residential properties are adjacent to each other. To address this concern, lighting products should be selected to minimize high angle brightness and poles located at or near the perimeter of the site should utilize sharp cutoff optics that limit light behind the pole.

Reducing light levels late at night

Many communities encourage businesses to reduce light levels late at night when activity in those areas is minimal. In addition, some areas are encouraged to turn off the lighting, such as sporting facilities. This can be accomplished by turning off some luminaires or zones. Advanced lighting systems can even detect motion and reduce the lighting in each fixture when there is not activity.

Why should I select Acuity Brands products for applications with environmental considerations?

Acuity Brands provides many options for responsible outdoor environments. We demonstrate our commitment to the nighttime environment through our development of superior optics, our involvement in industry activities to reduce the impact of obtrusive nighttime lighting and through our corporate commitment to environmental sustainability. We provide reliable test data and have made investments in the accreditation of our Conyers testing laboratory. Our sales personnel and technical support staff stand ready to help you identify the most effective outdoor lighting solutions and validate the performance of these systems.

IESNA CUTOFF CLASSIFICATIONS

CLASSIFICATION	DEFINITION	BENEFITS	LIMITATIONS
Full Cutoff	Zero intensity at or above horizontal (90° above nadir) and limited to a value not exceeding 10% of lamp lumens at or above 80°.	Limits spill light onto adjacent property, reduces glare. No light is emitted directly from the luminaire into the sky.	May reduce pole spacing to maintain uniformity and increase pole and luminaire quantities.
Cutoff	Intensity at or above 90° (horizontal) no more than 2.5% of lamp lumens, and no more than 10% of lamp lumens at or above 80°.	Small increase in high-angle light allows increased pole spacing.	May allow some uplight from luminaire. Typically a small overall impact on sky glow.
Semi-cutoff	Intensity at or above 90° (horizontal) no more than 5% of lamp lumens and no more than 20% at or above 80°.	High-angle light accents taller vertical surfaces such as buildings. Most light is still directed downward.	Little control of light at property line. Potential for increased glare when using high wattage luminaires. Typically directs more light into the sky than cutoff.
Non-cutoff	No limitations on light distribution at any angle.	Uniform luminous surfaces such as internally illuminated signs or globes. Wattage should be limited. Suitable for sports lighting, facade, landscape or other applications where luminaires are tilted due to limitations in pole or fixture locations.	Location and aiming are critical. Most likely of all categories to produce offensive brightness and sky glow.

Notes

See www.lithonia.com/nighttimefriendly for full details.

LUMINAIRE CLASSIFICATION SYSTEM

In 2007 the IES defined a new classification system for outdoor luminaires that evaluates the photometric performance of a luminaire based on light emitted into various solid angles that impact uplight, backlight and high angle glare zones. This IES standard is available in their publication, TM-15, "Luminaire Classification System for Outdoor Luminaires".

To the right is a 3-D representation of the LCS model including the sub angles for each zone. Below that is a graphical representation of how such data for a specific luminaire is represented in the Acuity online Photometric Viewer.

The forward and backlight zones near or slightly below horizontal provide a useful analysis of high angle brightness, often relating to objectionable glare. Keep in mind however, that glare relates to other factors including the size of the source and specific intensity at discrete angles. So additional research will continue to evaluate how to best quantify glare.

Evaluation of backlight must consider where the pole is located in relation to the property line.

And finally, in considering sky glow impact, the light at or near horizontal has a greater impact on the scattering of light in the atmosphere – resulting in a higher degree of sky glow over a community.

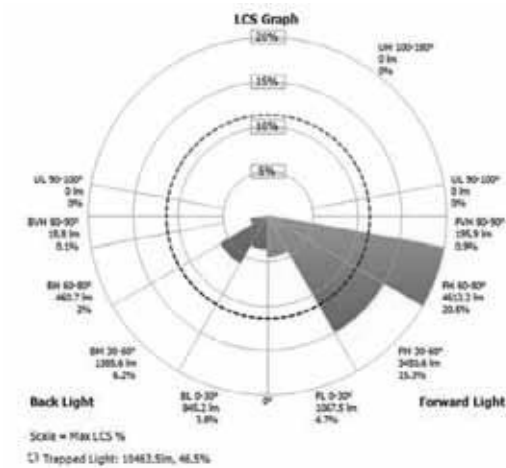
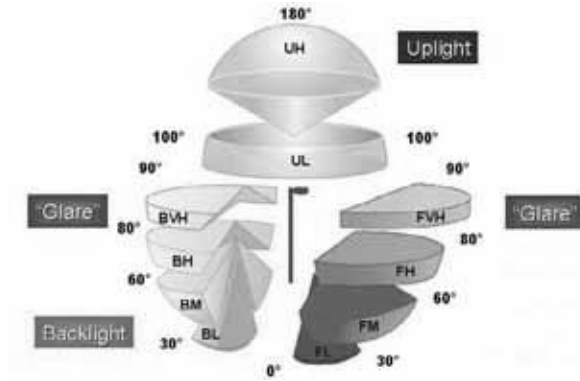
BUG Ratings

In February 2009, the TM-15 standard added zonal lumen limits defining Backlight (B), Uplight (U) and Glare (G) ratings. The zonal lumens in specific solid angles define a rating from 1 to 5 for each of three categories, with 1 being the most restrictive.

You will notice that the uplight category includes lumens that are in the very high zones below horizontal. The reason for this is because uplight – or sky glow, is impacted most by light emitted at or near horizontal because horizontal light causes the most scatter in the atmosphere as it picks up and reflects off of particulate in the air (such as dust particles, air pollution or even natural phenomena such as fog).

You will also notice there are two tables for the glare ratings. The zonal lumen thresholds are different for luminaires that have a symmetric distribution such as a Type V or Type V square from those that have a longitudinal or forward throw type of distribution such as Type I, II, III or IV.

BUG ratings for our products are available using the Acuity online Photometric Viewer.



BACKLIGHT/TRESPASS						
SECONDARY SOLID ANGLE	B0	B1	B2	B3	B4	B5
BH	110	500	1000	2500	5000	>5000
BM	220	1000	2500	5000	8500	>8500
BL	110	500	1000	2500	5000	>5000

UPLIGHT/SKYGLOW						
SECONDARY SOLID ANGLE	U0	U1	U2	U3	U4	U5
UH	0	10	100	500	1000	>1000
UL	0	10	100	500	1000	>1000
FVH	10	75	150	>150	—	—
BVH	10	75	150	>150	—	—

GLARE							
GLARE FOR TYPES I, II, III, IV, V and V SQUARE	SECONDARY SOLID ANGLE	G0	G1	G2	G3	G4	G5
	FVH	10	250	375	500	750	>750
BVH	10	250	375	500	750	>750	
FH	660	1800	5000	7500	12000	>12000	
GLARE FOR TYPES I, II, III AND IV	BH	110	500	1000	2500	5000	>5000
GLARE FOR TYPES V AND V SQUARE	BH	660	1800	5000	7500	12000	>12000