RULES and REGULATIONS

for

OUTDOOR ILLUMINATION

EFFECTIVE DATE:
Adopted by Southborough Planning Board:

Table of Contents

PREFACE

Recently, problems with light pollution have created a greater sense of urgency for change, due to increased understanding about the sever impacts on the environment and human health. Extensive efforts of the Illuminating Engineering Society of North America (IES), in consultation with various advocacy groups for responsible lighting, have resulted in a set of standards that:

- dramatically reduce the level of light pollution and
- can be met using readily available, reasonably priced lighting equipment

These standards make use of two highly recommended IES standards (IES TM-15).

First, is the use of lighting zones (LZ0-3) which the Planning Board has assigned to the Zoning Districts in Southborough as follows:

- LZ-0: Conservation and Research, Scientific & Professional
- LZ-1: Residential A and Residential B
- LZ-2: Business Village
- LZ-3: Business Highway, Industrial, and Industrial Park

Second, is the ~~makes~~ use of the IES B.U.G. rating system (backlight, uplight, glare) for luminaries. This rating system provides more effective control of unwanted light and avoids individual evaluation of a fixture's photometric properties. Importantly, the B.U.G. ratings will inherently limit the use of luminaries that would be universally restricted such as barn lights, non-shielded wall-packs, and flood or parking lighting that are not appropriately aimed downward (as B.U.G. standards include the lamp angle to the horizontal). This system also inherently prevents light trespass onto other properties, however special attention will be paid to those areas where abutting properties have disparate lighting zone ratings (e.g. Industrial LZ-3 abutting Residential A LZ-1) where additional light scatter can impact trespass requirements.

Lighting plans will be reviewed using the IES recommended hardscape method (or prescriptive method) for evaluating the total initial lumens (for the entire site) against the total allowed initial lumens per site (based on the lumen per square foot allowances according to lighting zone) to assess compliance. The hardscape method provides a simple process for assessing the total lighting for a site; supported by deep analysis through the utilization of B.U.G. standards as well as complete reporting of all site luminaire photometric properties. This process allows a more effective review of lighting plans for the overall site at an initial level of scrutiny.

Total Site Lumen Limit

The total installed initial luminaire lumens of all outdoor lighting shall not exceed the total site lumen limit. The total site lumen limit shall be determined using the hardscape area and table below. For sites with existing lighting, existing lighting shall be included in the calculation of total installed lumens. The total installed initial luminaire lumens are calculated as the sum of the initial luminaire lumens for all luminaires.

For luminaires with relative photometry per IES, it is calculated as the sum of the initial lamp lumens for all lamps within an individual luminaire, multiplied by the luminaire efficiency. If the efficiency is not known for a residential luminaire, assume 70%. For luminaires with absolute photometry per IES LM-79, it is the total luminaire lumens. The lumen rating of a luminaire assumes the lamp or luminaire is new and has not depreciated in light output.

Table 1: Allowed Total Initial Lumens Per Site for Outdoor Lighting by Hardscape Area

LZ-0	LZ-1	LZ-2	LZ-3
Conservation and Research, Scientific & Professional	Residential A and Residential B	Business Village	Business Highway and Industrial and Industrial Park
0.5 lumens per SF of hardscape	1.25 lumens per SF of hardscape	2.5 lumens per SF of hardscape	5.0 lumens per SF of hardscape

Table 2: Lighting Limits

	LZ-0	LZ-1	LZ-2	LZ-3
Row 1 Maximum Allowed ~~Not~~ Luminaire Lumens* for Unshielded Main Entry Luinaire-	not allowed	420 lumens	630 lumens	630 lumens
Row 2 Maximum Allowed Luminaire Lumens* for each Fully Shielded Luminaire	630 lumens	1260 lumens	1260 lumens	1260 lumens
Row 3 Maximum Allowed Luminaire Lumens* for each Unshielded Luminaire excluding main entry	not allowed	315 lumens	315 lumens	315 lumens
Row 4 Maximum Allowed Luminaire Lumens* for each Landscape Lighting	not allowed	not allowed	1050 lumens	2100 lumens
Row 5 Maximum Allowed Luminaire Lumens* for each Shielded Directional Flood Lighting	not allowed	not allowed	1260 lumens	2100 lumens
Row 6 Maximum Allowed Luminaire Lumens* for each Low Voltage Landscape Lighting	not allowed	not allowed	525 lumens	525 lumens

Limits to Off Site Impact
All luminaires shall have BUG rating (IES TM-15) reported and shall be installed according to the following tables:

Table 3: Maximum Allowable Backlight.

	LZ-0	LZ-1	LZ-2	LZ-3
Allowed Backlight Rating*				
Greater than 2 mounting heights from property line	B1	B3	B4	B5
1 to less than 2 mounting heights from property line, and ideally oriented**	B1	B2	B3	B4
0.5 to 1 mounting heights from property line and ideally oriented**	B0	B1	B2	B3
Less than 0.5 mounting height to property line and properly oriented**	B0	B0	B0	B1

A luminaire may be used if it is rated for the lighting zone of the site or lower in Backlight number. Luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming in the field shall not be permitted.

For property lines ~~that are~~ shared between two disparate lighting zones, special attention will be paid to the degree of indirect light cast onto adjacent properties and will be considered part of the backlighting requirement. Large surfaces such as the sides of buildings and other potentially reflective surfaces which may scatter inward-facing light outward beyond the property line must be managed to prevent such trespass. Examples include alteration of the surface coating, color, and/or placement of these structures to prevent scatter or manage the direction of scatter to avoid light trespass.

To be considered 'ideally oriented', the luminaire must be mounted with the backlight portion of the light output oriented perpendicular and towards the property line of concern.

Table 3a: Maximum Allowable Uplight. A luminaire may be used if it is rated for the lighting zone of the site or lower in Uplight number.

	LZ-0	LZ-1	LZ-2	LZ-3
Allowed Uplight Rating	U0	U1	U2	U3
Allowed % light emission above 90° for street or area lighting	0%	0%	0%	0%

Table 3b: Maximum Allowable Glare. A luminaire may be used if it is rated for the lighting zone of the site or lower in Glare number.

	LZ-0	LZ-1	LZ-2	LZ-3
Allowed Glare Rating	G0	G1	G2	G3
Any luminaire not ideally oriented*** with 1 to less than 2 mounting heights to any property line of concern	G0	G0	G1	G1
Any luminaire not ideally oriented*** with 0.5 to 1 mounting heights to any property line of concern	G0	G0	G0	G1
Any luminaire not ideally oriented*** with less than 0.5 mounting heights to any property line of concern	G0	G0	G0	G0

Any luminaire that cannot be mounted with its backlight perpendicular to any property line within 2X the mounting heights of the luminaire location shall meet the reduced Allowed Glare Rating in Table 2b.

Light Shielding for Parking Lot Illumination
All parking lot lighting shall have no light emitted above 90 degrees.

Exception: Ornamental parking lighting shall be permitted by special permit only, and shall meet the requirements found in Tables 2a-c for Backlight, Uplight, and Glare, without the need for external field-added modifications.

LED Correlated Color and Output
All proposed LED lighting shall have a correlated color temperature (CCT) ≤ 3000K, with S/P< 1.2.

Residential properties including multiple residential properties not having common areas, all outdoor luminaires shall be fully shielded and shall not exceed the allowed lumen output in Table 3, row 2. All residential landscape lighting shall comply with Table 3 and shall not be aimed into adjacent properties.

Exceptions
1. One partly shielded or unshielded luminaire at the main entry, not exceeding the allowed lumen output in Table 3 row 1.
2. Any other partly shielded or unshielded luminaires not exceeding the allowed lumen output in Table 3 row 3.
3. Low voltage landscape lighting aimed away from adjacent properties and not exceeding the allowed lumen output in Table 3 row 4.
4. Shielded directional flood lighting aimed so that direct glare is not visible from adjacent properties and not exceeding the allowed lumen output in Table 3 row 5.

5. Open flame gas lamps.
6. Lighting installed with a vacancy sensor, where the sensor extinguishes the lights no more than 15 minutes after the area is vacated.

Luminaire lumens equals Initial Lamp Lumens for a lamp, multiplied by the number of lamps in the luminaire

Select IES Guidance on Use of Lighting Zones and BUG Rating System

Lighting zones reflect the base (or ambient) light levels desired by a community. The use of lighting zones (LZ) was originally developed by the International Commission on Illumination (CIE) and appeared first in the US in IES Recommended Practice for Exterior Environmental Lighting, RP-33-99.

It is recommended that lower lighting zone(s) be given preference when establishing zoning criteria. Selection of lighting zone or zones should be based not on existing conditions but rather on the type of lighting environments the jurisdiction seeks to achieve. For instance, new development on previously rural or undeveloped land may be zoned as LZ-1.Using lighting zones allows a great deal of flexibility and customization without the burden of excessive regulation. For example, a jurisdiction may choose to establish vertical lighting zones with the lighting zone at street level at a higher zone than the residential housing on upper levels.

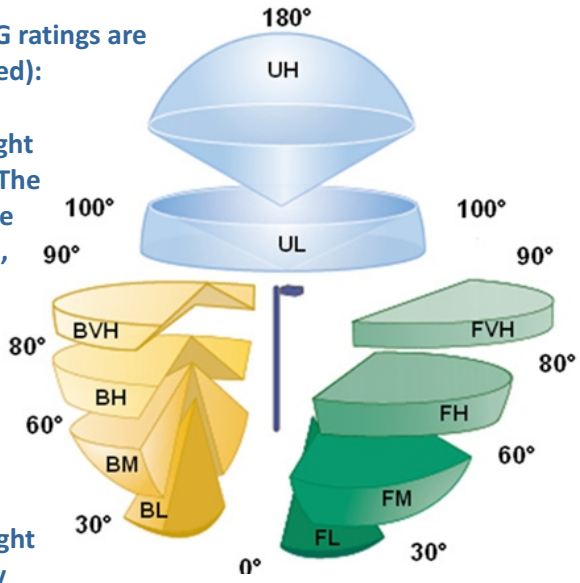
However, if an adjacent use could be adversely impacted by allowable lighting, the adopting authority may require that a particular site meet the requirements for a lower lighting zone. For example, the authority could specify Lighting Zone 1 or 2 requirements if a commercial development were adjacent to a residence, hospital or open space, or to any land assigned to a lower zone.

Lighting zones are best implemented as an overlay to the established zoning especially in communities where a variety of zone districts exists within a defined area or along an arterial street. Where zone districts are cohesive, it may be possible to assign lighting zones to established land use zoning. It is recommended that the lighting zone includes churches, schools, parks, and other uses embedded within residential communities.

Zone	Recommended Uses or Areas	Zoning Considerations
LZ-0	**Lighting Zone 0 should be applied to areas in which permanent lighting is not expected and when used, is limited in the amount of lighting and the period of operation. LZ-0 typically includes undeveloped areas of open space, wilderness parks and preserves, areas near astronomical observatories, or any other area where the protection of a dark environment is critical. Special review should be required for any permanent lighting in this zone. Some rural communities may choose to adopt LZ-0 for residential areas.**	**Recommended default zone for wilderness areas, parks and preserves, and undeveloped rural areas.** Includes protected wildlife areas and corridors.
LZ-1	**Lighting Zone 1 pertains to areas that desire low ambient lighting levels. These typically include single and two family residential communities, rural town centers, business parks, and other commercial or industrial/ storage areas typically with limited nighttime activity. May also include the developed areas in parks and other natural settings.**	**Recommended default zone for rural and low density residential areas.** Includes residential single or two family; agricultural zone districts; rural residential zone districts; business parks; open space include preserves in developed areas.

Zone	Recommended Uses or Areas	Zoning Considerations
LZ-2	**Lighting Zone 2 pertains to areas with moderate ambient lighting levels. These typically include multifamily residential uses, institutional residential uses, schools, churches, hospitals, hotels/motels, commercial and/or businesses areas with evening activities embedded in predominately residential areas, neighborhood serving recreational and playing fields and/or mixed use development with a predominance of residential uses. Can be used to accommodate a district of outdoor sales or industry in an area otherwise zoned LZ-1.**	**Recommended default zone for light commercial business districts and high density or mixed use residentialdistricts.** Includes neighborhood business districts; churches, schools and neighborhood recreation facilities; and light industrial zoning with modest nighttime uses or lighting requirements.
LZ-3	**Lighting Zone 3 pertains to areas with moderately high lighting levels. These typically include commercial corridors, high intensity suburban commercial areas, town centers, mixed use areas, industrial uses and shipping and rail yards with high night time activity, high use recreational and playing fields, regional shopping malls, car dealerships, gas stations, and other nighttime active exterior retail areas.**	**Recommended default zone for large cities' business district.** Includes business zone districts; commercial mixed use; and heavy industrial and/or manufacturing zone districts.

The three components of BUG ratings are based on IES TM-15-07 (revised):



Backlight, which creates light trespass onto adjacent sites. The B rating takes into account the amount of light in the BL, BM, BH and BVH zones, which are in the direction of the luminaire OPPOSITE from the area intended to be lighted.

Uplight, which causes artificial sky glow. Lower uplight (zone UL) causes the most sky glow and negatively affects professional and academic astronomy. Upper uplight (UH) not reflected off a surface is mostly energy waste. The U rating defines the amount of light into the upper hemisphere with greater concern for the light at or near the horizontal angles (UL).

Glare, which can be annoying or visually disabling. The G rating takes into account the amount of frontlight in the FH and FVH zones as well as BH and BVH zones.

BUG ratings apply to the Lighting Zone of the property under consideration.

(Key: UH=Uplight High, UL=Uplight Low, BVH=Backlight Very High, BH=Backlight High, BM=Backlight Medium, BL=Backlight Low, FVH=Forward Light Very High, FH=Forward Light High, FM=Forward Light Medium, FL=Forward Light Low.)

In general, a higher BUG rating means more light is allowed in solid angles, and the rating increases with the lighting zone. However, a higher B (backlight) rating simply indicates that the luminaire directs a significant portion of light behind the pole, so B ratings are designated based on the location of the luminaire with respect to the property line. A high B rating luminaire maximizes the spread of light, and is effective and efficient when used far from the property line. When luminaires are located near the property line, a lower B rating will prevent unwanted light from interfering with neighboring properties.

At the 90-180 degree ranges:

- **Zone 0 allows no light above 90 degrees.**
- **Zone 1 allows only 10 lumens in the UH and UL zones, 20 lumens total in the complete upper hemisphere. (This is roughly equivalent to a 5 W incandescent lamp).**
- **Zone 2 allows only 50 lumens in the UH and UL zones, 100 lumens total (less than a 25W incandescent lamp).**
- **Zone 3 allows only 500 lumens in the UH and UL zones, 1000 lumens total (about the output of a 75W incandescent bulb).**

In this example, three types of luminaires are used to light a parking area and building entry in a light commercial area. Two of these three luminaires use metal halide lamps: 70 watt wall mounted area lights and 150 watt pole mounted area lights. For these, the Initial Luminaire Lumens is equal to the initial lamp lumens multiplied by the luminaire efficiency. These values are entered into the compliance chart. The lumen value for the building mounted LED luminaires is equal to the lumens exiting the luminaire. Therefore, the value already represents the Initial Luminaire Lumens and no luminaire efficiency is needed. The total Luminaire Lumens for the site is equal to 247,840. The allowable lumens are based on the lighting zone and the total hardscape area. Referencing Table 1, the allowed lumens are 2.5/SF for LZ2. Multiplying this by the total hardscape square footage gives a value of 250,000 lumens allowed. Because this value is greater than the value calculated for the site, the project complies.

HARDSCAPE METHOD EXAMPLE - COMPLIANCE CHART			
Lamp Descriptions	*QTY*	*Initial Luminaire Lumens*	*Total*
70 W Metal Halide	8	3,920	31,360
150 W Metal Halide	20	9,600	192,000
18 W LED	24	1,020	24,480
TOTAL INITIAL LUMINAIRE LUMENS			247,840
SITE ALLOWED TOTAL INITIAL LUMENS*			250,000
PROJECT IS COMPLIANT?			YES

*** Listed below is the method of determining the allowed total initial lumen for non-residential outdoor lighting using the hardscape areamethod.**

SITE ALLOWED TOTAL INITIAL LUMENS	
Site Description	Light Commercial
Lighting Zone	LZ-2
Hardscape Area (SF)	100,000
Allowed Lumens per SF of Hardscape (T	2.5
Site Allowed Total Initial Lumens (lumens per SF X hardscape area)	250,000

MRP LED
LED Area Luminaire

NIGHTTIME FRIENDLY

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

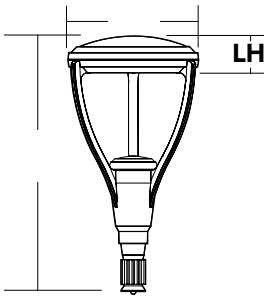
EPA: 1.125 ft² *(0.105 m²)*

Luminaire Height: 6-3/8" *(16.2 cm)*

Overall Height: 32" *(81.3 cm)*

Diameter: 18" *(45.7 cm)*

Weight (max): 37.5 lbs *(17 kg)*



A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a . DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability1
- This luminaire is part of an A+ Certified solution for ROAM® or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a [1]

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: Link to Roam; Link to DTL DLL

Ordering Information

EXAMPLE: MRP LED 42C 700 40K SR5 MVOLT DDBXD

MRP LED

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
MRP LED	42C 42 LEDs (one engine)	350 350mA 530 530mA 700 700mA 1000 1000mA (1A)	30K 3000K 40K 4000K 50K 5000K	SR2 Type II SR3 Type III SR4 Type IV SR5 Type V	MVOLT [1] 277 [2] 120 [2] 347 [2] 208 [2] 480 [2] 240 [2]	**Shipped included** (blank) Fits 4"OD round pole **Shipped separately** [3] MRPT20 2-3/8" tenon slipfitter MRPT25 2-7/8" tenon slipfitter **Shipped separately** [3] MRPT30 3-1/2"tenon slipfitter MRPT35 4"tenon slipfitter MRPF3 3"OD round pole adapter MRPF5 5"OD round pole adapter [4]

Control options

Shipped installed

PER	NEMA twist-lock receptacle only (control ordered separate)
PER5	Five-wire receptacle only (control ordered separate) [5]
PER7	Seven-wire receptacle only (control ordered separate) [5]
BL30	Bi-level switched dimming, 30% [6,7]
BL50	Bi-level switched dimming, 50% [6,7]
PNMTDD3	Part night, dim till dawn [7]
PNMT5D3	Part night, dim 5 hrs [7]
PNMT6D3	Part night, dim 6 hrs [7]
PNMT7D3	Part night, dim 7 hrs [7]

Other options

SF	Single fuse (120, 277, 347V) [2]
DF	Double fuse (208, 240, 480V) [2]

Finish *(required)*

DDBXD	Dark bronze	DDBTXD	Textured dark bronze
DBLXD	Black	DBLBXD	Textured black
DNAXD	Natural aluminum	DNATXD	Textured natural aluminum
DWHXD	White	DWHGXD	Textured white

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [8]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [8]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [8]
DSHORT SBK U	Shorting cap [8]
MRPT20 DDBXD U	2-3/8" tenon slipfitter (specify finish)
MRPT25 DDBXD U	2-7/8" tenon slipfitter (specify finish)
MRPT30 DDBXD U	3-1/2" tenon slipfitter (specify finish)
MRPT35 DDBXD U	4" tenon slipfitter (specify finish)
MRPF3 DDBXD U	3" OD round pole adapter (specify finish)
MRPF5 DDBXD U	5" OD round pole adapter (specify finish) [5]

For more control options, visit DTL and ROAM online.

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
3. Also available as a separate accessory; see Accessories information at left.
4. Maximum pole wall thickness is 0.156".
5. If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls.
6. Requires an additional switched line.
7. Dimming driver standard. Not available with 347V, 480V, SF, DF, PER5 or PER7.
8. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K					40K					50K				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
42C (42 LEDs)	530	75W	SR2	5,456	1	2	1	73	6,605	1	2	1	88	6,671	1	2	1	89
			SR3	5,436	1	1	1	72	6,581	1	1	2	88	6,647	1	1	2	89
			SR4	5,399	1	1	1	72	6,537	1	1	2	87	6,602	1	1	2	88
			SR5	5,748	3	1	3	77	6,959	3	1	3	83	7,029	3	1	3	94
	700	100W	SR2	6,630	1	2	1	66	8,026	2	2	2	80	8,106	2	2	2	81
			SR3	6,605	1	1	2	66	7,997	1	2	2	80	8,077	1	2	2	81
			SR4	6,561	1	1	2	66	7,943	1	2	2	79	8,022	1	2	2	80
			SR5	6,985	3	1	3	70	8,456	3	2	3	85	8,541	3	2	3	85
	1000	151W	SR2	8,165	2	2	2	54	9,885	2	2	2	65	9,983	2	2	2	66
			SR3	8,135	1	2	2	54	9,848	2	2	2	65	9,947	2	2	2	66
			SR4	8,080	2	2	2	54	9,782	2	2	2	65	9,880	2	2	2	65
			SR5	8,602	3	2	3	57	10,414	4	2	4	70	10,518	4	2	4	70

PER Table

Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
			Wire 4/Wire5		Wire 4/Wire5	Wire 6/Wire7
Photocontrol Only (On/Off)	✓	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	⊘	✓	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion (ROAM on/off only)	⊘	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof*	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof* with Motion	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture

✓ Recommended

⊘ Will not work

⚠ Alternate

*Futureproof means: Ability to change controls in the future.

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.06
10°C	50°F	1.04
20°C	68°F	1.01
25°C	**77°F**	**1.00**
30°C	86°F	0.99
40°C	104°F	0.96

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **MRP LED 42C 700** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.96	0.92	0.85

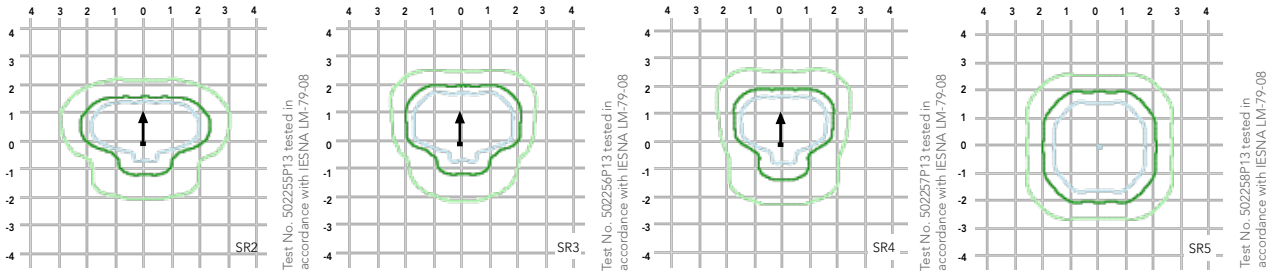
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's MRP LED homepage.

Isofootcandle plots are considered to be representative of available optical distributions.

LEGEND

- 0.1 fc
- 0.5 fc
- 1.0 fc



FEATURES & SPECIFICATIONS

INTENDED USE
Streets, walkways, parking lots and surrounding areas.

CONSTRUCTION
Single-piece die-cast aluminum housing with nominal wall thickness of .012". Die-cast top access doorframe has impact-resistant, tempered glass lens (3/16" thick). Doorframe is fully gasketed with one-piece tubular silicone.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum and white. Available in textured and non-textured finishes.

OPTICS
Precision acrylic refractive optics for optimum light distribution through the flat glass lens. Light engines are available in standard 3000K (70 CRI) or optional 4000K (70 CRI) or 5000K (70 CRI) configurations.

ELECTRICAL
Light engine consists of 42 high-efficacy LEDs mounted to a metal-core circuit board and aluminum heat sink, ensuring optimal thermal management and long life. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low for operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Standard post-top mounting configuration fits into a 4" OD open pole top (round pole only). Multiple options and accessories are available for other mounting needs.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient. **U.S. Patent No. D556,357.**

WARRANTY
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.