futura lighting

LED LIGHT BULBS | 2008-09

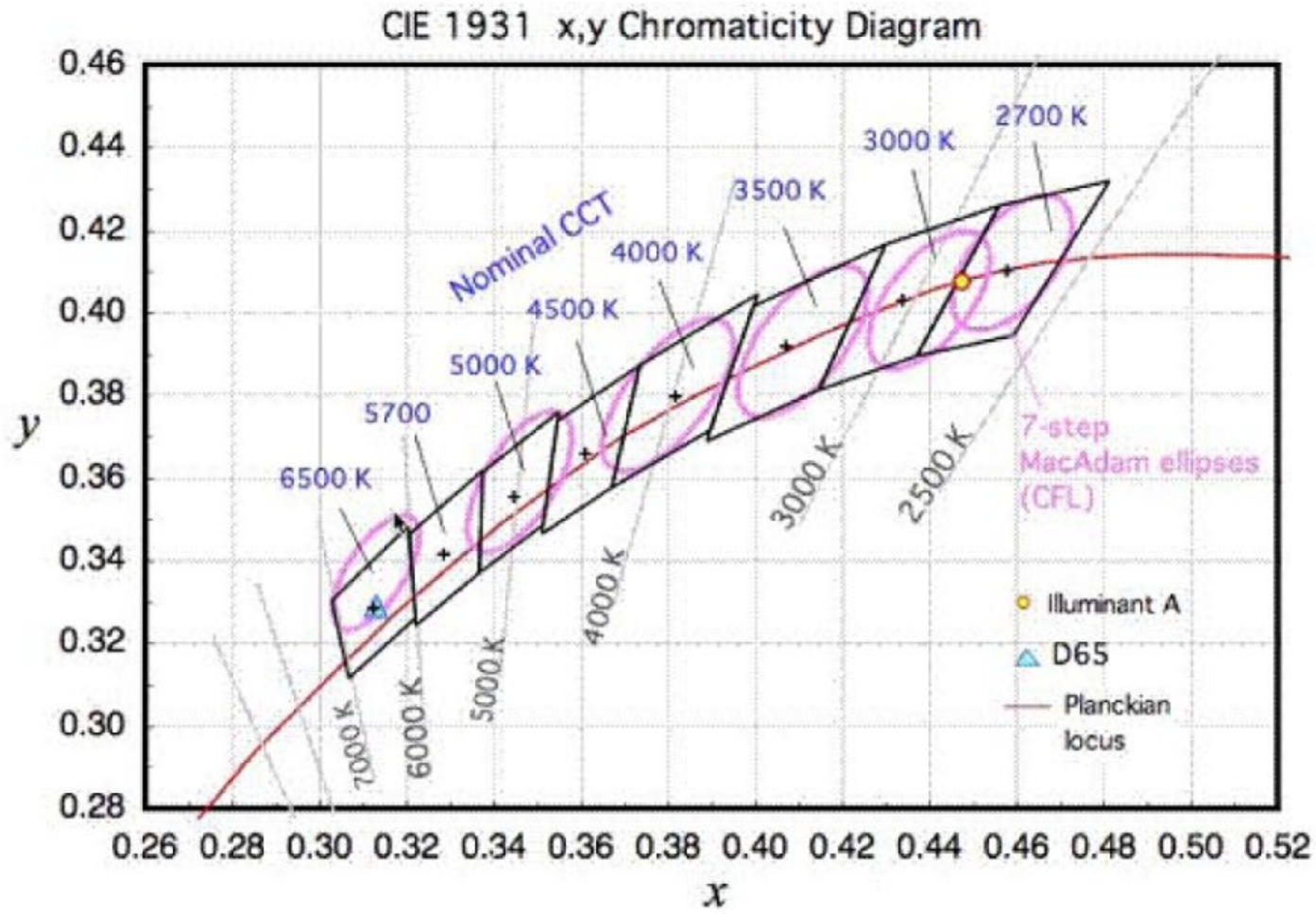
Energy Star

The ENERGY STAR Program Requirements for Solid State Lighting Luminaires criteria are finalized by the Department of Energy, USA on September 12, 2007. The criteria cover the requirements for SSL products used for general illumination, including those with significant decorative function. The criteria apply to both residential and commercial products. The criteria apply only to products designed to be connected to the electric power grid.

The criteria are based upon compliance with existing lighting industry reference standards and test procedures currently being developed by lighting industry organizations. The effective date for the ENERGY STAR Program Requirements and Criteria for SSL–Version 1.0 was September 30, 2008. However, DOE will not make the criteria effective until all referenced standards and test procedures are in effect.

The luminaire must have one of the following designated CCTs.

1. 2725 ± 145
2. 3045 ± 175
3. 3465 ± 245
4. 3985 ± 275
5. 4503 ± 243
6. 5028 ± 283
7. 5665 ± 355
8. 6530 ± 510



- **Color Spatial Uniformity**
  The Variation of chromaticity in different directions shall be within 0.004 from the weighted average point on the CIE 1976 (u',v') diagram.

- **Color Maintenance**
  The change of chromaticity over the lifetime of the products shall be within 0.007 on the CIE 1976 (u',v') diagram.

- **Color Rendering Index (CRI)**
  Indoor luminaires shall have a minimum CRI of 75.

- **Off-state Power**
  Luminaires shall not draw power in the off state.

- **Warranty**
  A warranty must be provided for luminaires, covering repair or replacement of defective electrical parts for a minimum of three (3) years from the date of purchase.

- **Thermal Management**
  Luminaire manufactures shall adhere to device manufacturer guidelines, certification programs, and test procedures for thermal management.

All Futura Lighting products in this catalog are developed and manufactured based on the ENERGY STAR for SSL criteria to ensure optimal performance and reliability.

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FL30/FL30L LED Lamp

FL30 is an exceptionally high performance LED lamp built to last. It is a premium quality solid state lighting product precisely engineered and manufactured with state of the art technologies and materials.

Proprietary driving circuit enables FL30 to replace traditional incandescent/halogen lamp, up to 75 Watt, directly without additional modification or transformer. Digital dimming is available for further energy saving on FL30L model.

Features

- Solid State Lighting Technology
- Derease Energy Consumption
- Reduce CO2 Emission
- Superior Quality Light
- Ecologically Friendly
- Slim and Compact
- 3-year Limited Warranty

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Dimensions

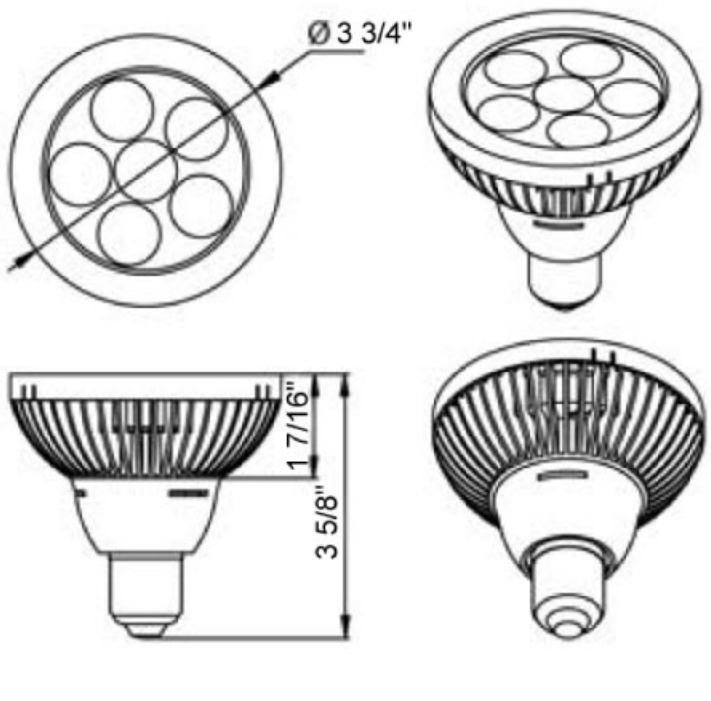

Figure 1: FL30 Dimensions

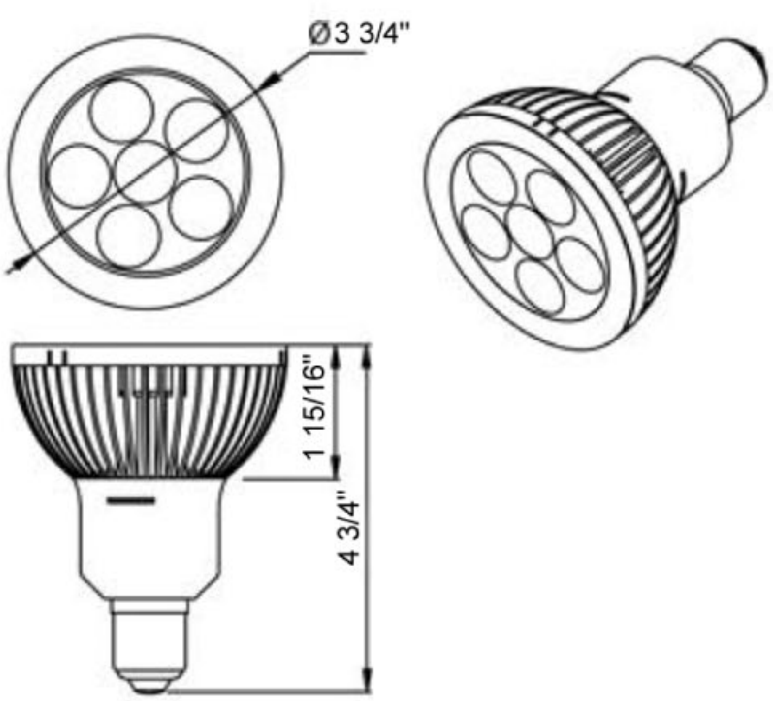

Figure 2: FL30L Dimensions

Unit: inches
Tolerance: ±0.098 inches

Absolute Maximum Rating

Parameter	Rating	Units
LED Junction Temperature	125	°C
Plastic Housing Temperature	80	°C
Operating Temperature	-30 ~ +40	°C
Storage Temperature	-40 ~ +60	°C
AC Input Voltage	100 ~ 240	V
Equilibrium Temperature	55	°C

Table 1: FL30 LED Lamp absolute maximum rating

Specifications

FL30 LED Lamp	
Power Consumption	10 Watt
Field Angle	25° / 40°
Color Temperature	3000 / 4000 / 6000K
CRI	Up to 90
Weight	215g / 280g (P30L)
Base	E26 / E27

Table 2: FL30 LED Lamp specifications

Illuminance and Beam Angles

Cool White

Power Consumption	Part Number	CCT(Typ.)	Cone Beam Angle	Lux*@ 1m (Typ.)
10W	FL3025CW FL3040CW	6000K	25°±2.5°	2850

Neutral White

Power Consumption	Part Number	CCT(Typ.)	Cone Beam Angle	Lux*@ 1m (Typ.)
10W	FL3025NW FL3040NW	4000K	25°±2.5°	2400

Warm White

Power Consumption	Part Number	CCT(Typ.)	Cone Beam Angle	Lux*@ 1m (Typ.)
10W	FL3025WW FL3040WW	3000K	25°±2.5°	2000

Table 3: FL30 LED Lamp illuminance and beam angles

Notes:
1. Lux value is measured under thermal balanced condition (i.e. after 1 hour continuous operation).
2. LED is a dynamic and constant y evolving technology. The final lux output of your FL30 LED Lamp may vary.
3. Input voltage - AC100~240V.

Light Patterns

25°

FL3025CW 6000K

FL3025NW 4000K

FL3025WW 3000K

40°

FL3040CW 6000K

FL3040NW 4000K

FL3040WW 3000K

Figure 3: FL30 LED Lamp light patterns of different color temperature

Lifetime

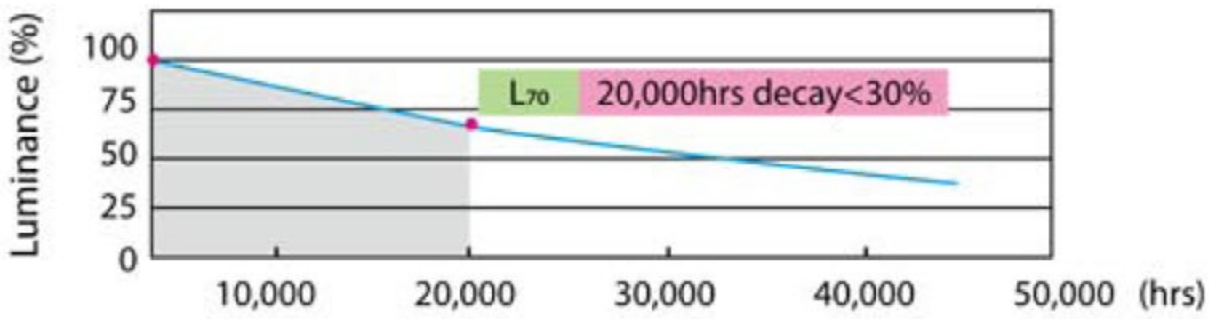

Table 4: FL30 LED Lamp Lifetime

Application Notes

The compact and integral design of the FL30 LED Lamp makes it ideal for a wide variety of lighting applications, including retail store spotlight, ceiling downlight, as well as many other accent lightings.

Various color temperature and beam pattern options are suitable for an array of scenarios.

Note: As part of its policy of continuous research and development, Futura Lighting reserves the right to change or withdraw specifications without prior notice.

2600
Recessed Downlight

Utilizing the most advanced power LEDs from worldwide renowned companies, Futura Lighting 2600 downlight integrates electrical,optical,and thermal management aspects of LEDs while at the same time remain slim and compact in size.

2600 is bulit specifically to model under limited space where traditional lighting fixtures are too large to fit in.

Features

- Solid State Lighting Technology
- Derease Energy Consumption
- Reduce CO2 Emission
- Superior Quality Light
- Ecologically Friendly
- Slim and Compact
- 3-year Limited Warranty

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Dimensions

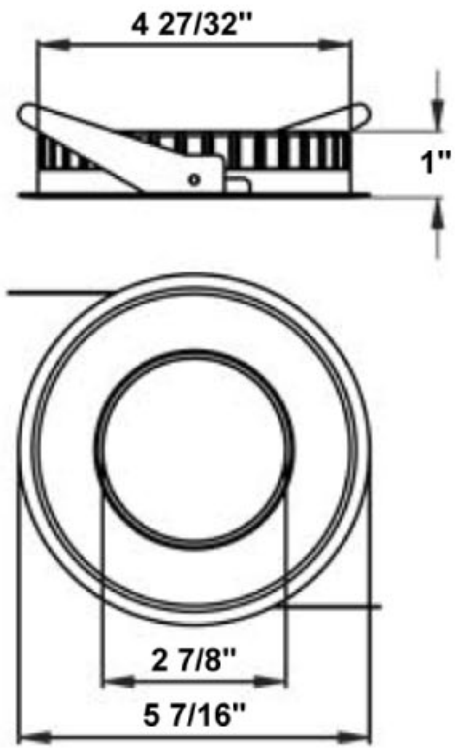

Figure 1: 2600 Recessed Downlight Dimensions

Unit: inches
Tolerance: ±0.098 inches

Specifications

TD26 Recessed Downlight	
Power Consumption	10 Watt
Field Angle	25° / 40°
Color Temperature	3000 / 4000 / 6000K
CRI	Up to 90
Surface Temperature(Ta=25˚C)	56°C
Weight	< 390 g
Driver	500mA / 12W

Table 1: 2600 Recessed Downlight Specifications

Illuminance and Beam Angles

Cool White

Power Consumption	Part Number	CCT(Typ.)	Cone Beam Angle	Lux*@ 1m (Typ.)
10W	2625 02CW 2625 05CW	6000K	25°±2.5°	2850

Neutral White

Power Consumption	Part Number	CCT(Typ.)	Cone Beam Angle	Lux*@ 1m (Typ.)
10W	2625 02 2625 05	4000K	25°±2.5°	2400

Warm White

Power Consumption	Part Number	CCT(Typ.)	Cone Beam Angle	Lux*@ 1m (Typ.)
10W	2625 02WW 2625 05WW	3000K	25°±2.5°	2000

Table 2: 2600 Recessed Downlight illuminance and beam angles

Notes:
1. Lux value is measured under thermal balanced condition (i.e. after 1 hour continuous operation).
2. LED is a dynamic and constant y evolving technology. The final lux output of your 2600 Recessed Downlight may vary.
3. Input voltage - AC100~240V.

Light Patterns

25°

2625 02CW 6000K

2625 02 4000K

2625 02WW 3000K

40°

2625 05CW 6000K

2625 05 4000K

2625 05WW 3000K

Figure 2: 2600 Recessed Downlight light patterns of different color temperature

Lifetime

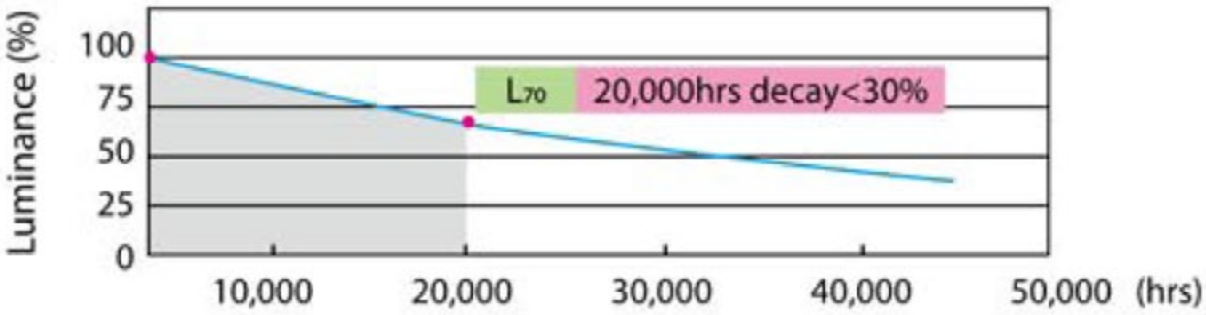

Table 3: 2600 Recessed Downlight Lifetime

Application Notes

The compact and integral design of the 2600 Recessed Downlight makes it ideal for a wide variety of lighting applications, including retail store spotlight, ceiling downlight, as well as many other accent lightings.

Various color temperature and beam pattern options are suitable for an array of scenarios.

Note: As part of its policy of continuous research and development, Futura Lighting reserves the right to change or withdraw specifications without prior notice.

5W LED MR16

Our MR16 uses high brightness LED engine which gives a superb illuminance. It is ideal for the use in tracks, rails, and pendants in exhibit, architectual and residential applications. Furthermore, the multi-selection on various colors offers a great experience in decorative and mood-lighting applications. The lamp features standard MR16 bi-pin, which offers an instant replacement in MR16 type fixtures. With a life of up to 50,000 hours, it can be used in hard-to-reach locations to prevent regular maintenance needs.

Features

- Compatible with traditional halogen MR16
- High power factor
- Excellent thermal performance
- No UV light

Typical Applications

- Entertainment lighting
- Architectural lighting
- Landscape lighting
- Bollards/Security/Garden lighting
- Interior Commercial lighting

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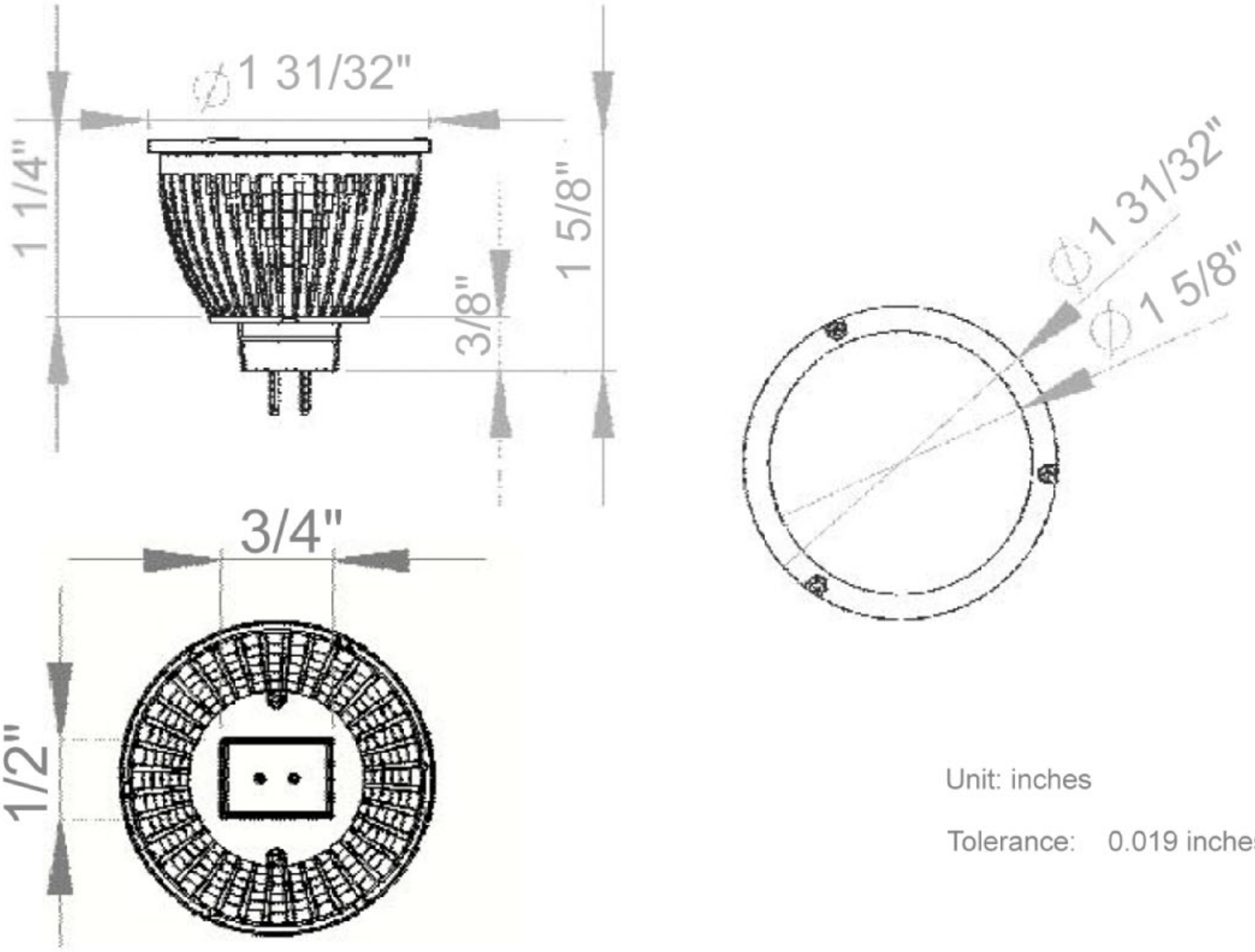
Product Dimensions



< Figure 1 MR16 dimensions >

Material

- Heatsink: Aluminum die casting
- Bottom base: PBT, flammability V2 level
- Surface of heatsink: Anodization

Pin type

- GU 5.3

Absolute Maximum Ratings

< Table 2 MR16 absolute maximum ratings >

Parameter	Symbol	Rating	Unit
LED Junction Temperature	T_j	125	℃
Plastic bottom Temperature	Tc	75	℃
Operating Temperature	T_{opr}	-30 ~ +40	℃
Storage Temperature	T_{stg}	-40 ~ +60	℃
Heatsink Temperature	Th	75	℃
Input Voltage root-mean-square	Vrms	14	V

Specification

< Table 3 MR16 specifications >

Power consumption	Part Name	Color	Beam Angle	Lux @ 1m (Typ.)
5W	L5MR16-10CW	Cool White	10°	1,100
	L5MR16-10NW	neurral White	10°	850
	L5MR16-10WW	Warm White	10°	700
	L5MR16-10RD	Red	10°	150
	L5MR16-10AM	Amber	10°	150
	L5MR16-10GR	True Green	10°	500
	L5MR16-10BL	Blue	10°	250

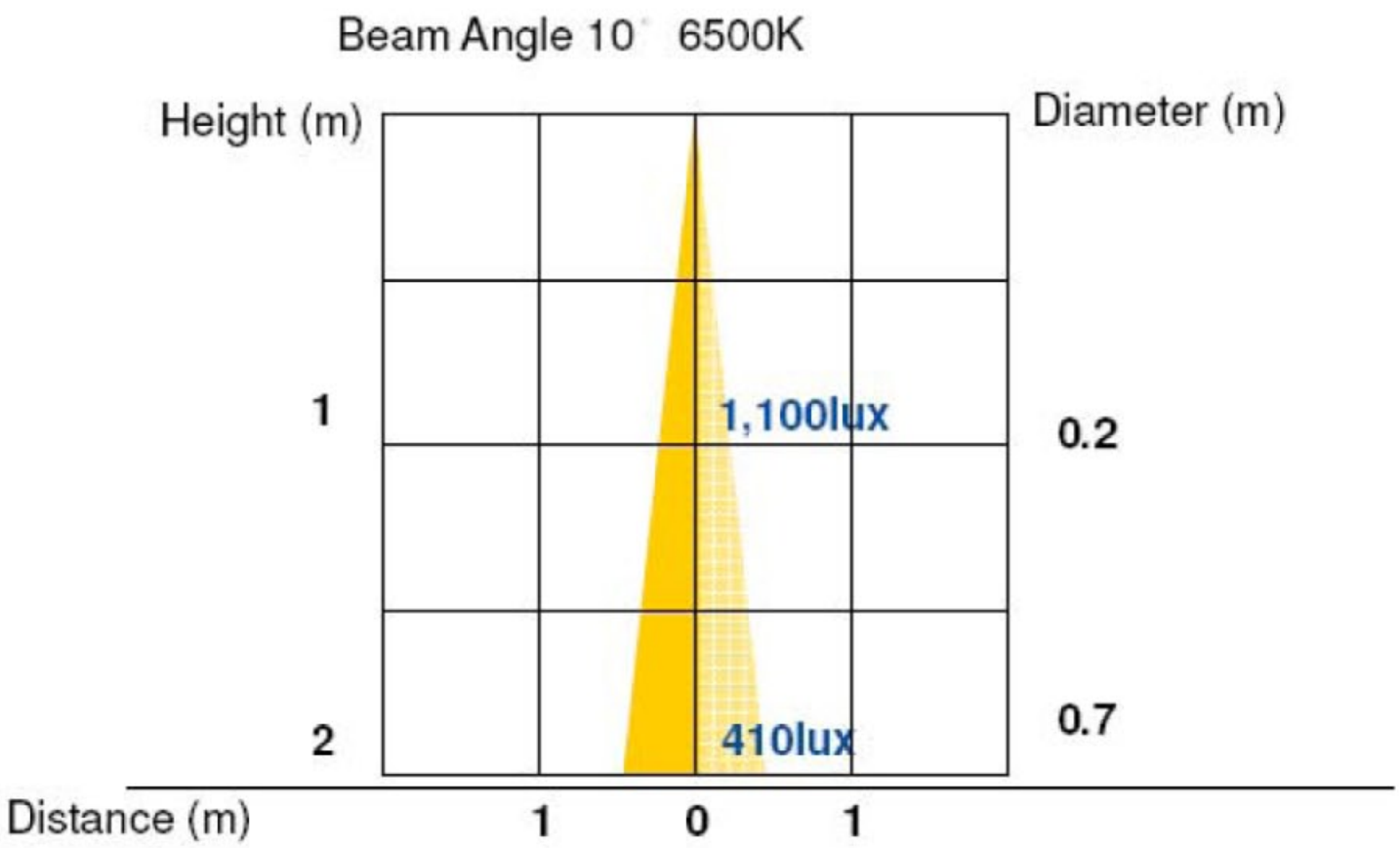
Power consumption	Part Name	Color	Beam Angle	Lux @ 1m (Typ.)
5W	L5MR16-38CW	Cool White	38°	600
	L5MR16-38NW	Neutral White	38°	450
	L5MR16-38WW	Warm White	38°	300
	L5MR16-38RD	Red	38°	90
	L5MR16-38AM	Amber	38°	90
	L5MR16-38GR	True Green	38°	160
	L5MR16-38BL	Blue	38°	130

Power consumption	Part Name	Color	Beam Angle	Lux @ 1m (Typ.)
5W	L5MR16-60CW	Cool White	60°	70
	L5MR16-60NW	Neutral White	60°	55
	L5MR16-60WW	Warm White	60°	50
	L5MR16-60RD	Red	60°	35
	L5MR16-60AM	Amber	60°	35
	L5MR16-60GR	True Green	60°	90
	L5MR16-60BL	Blue	60°	65

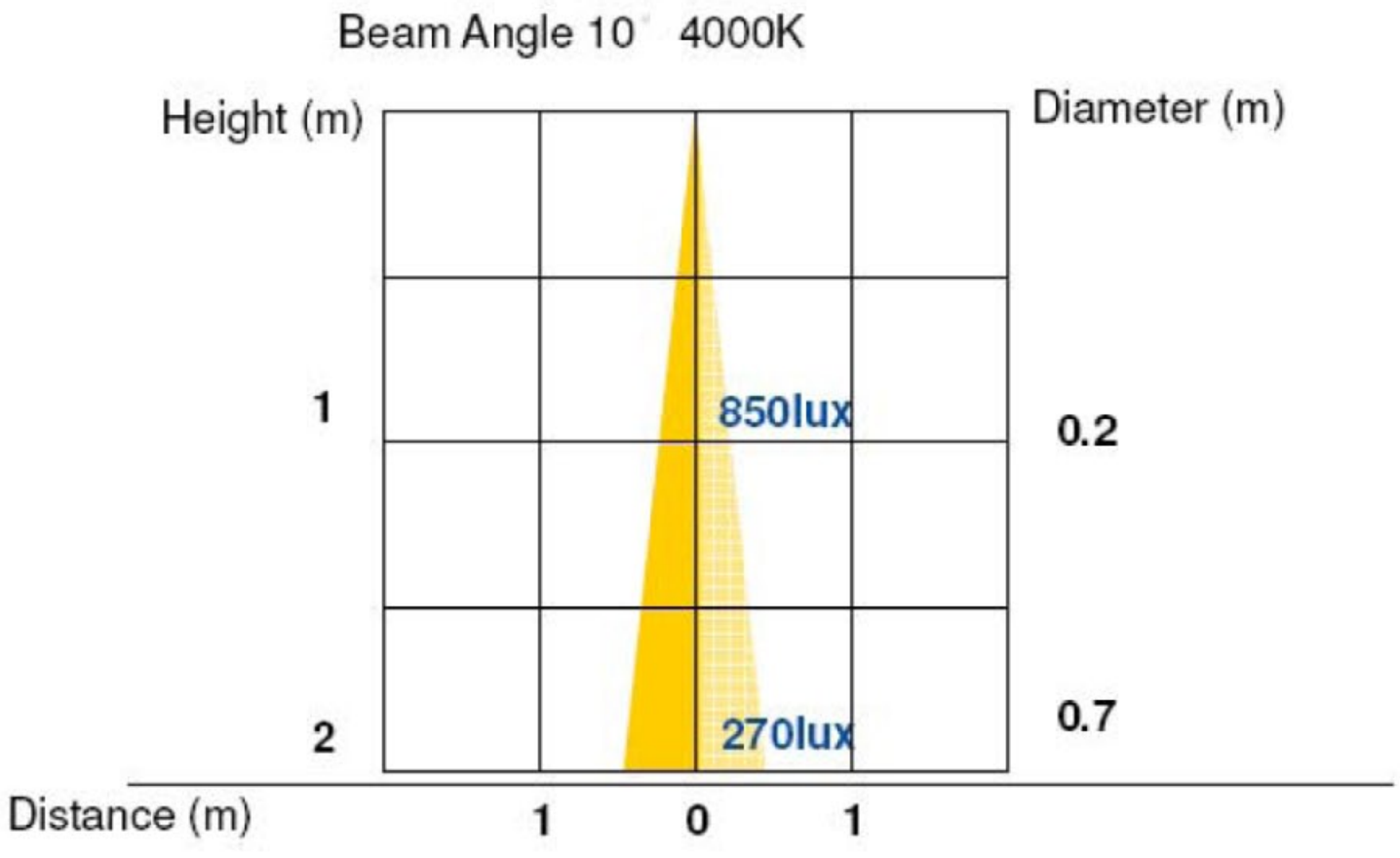
Note:

Lux value is measured under thermal balance condition (i.e. after 1 hour operation)

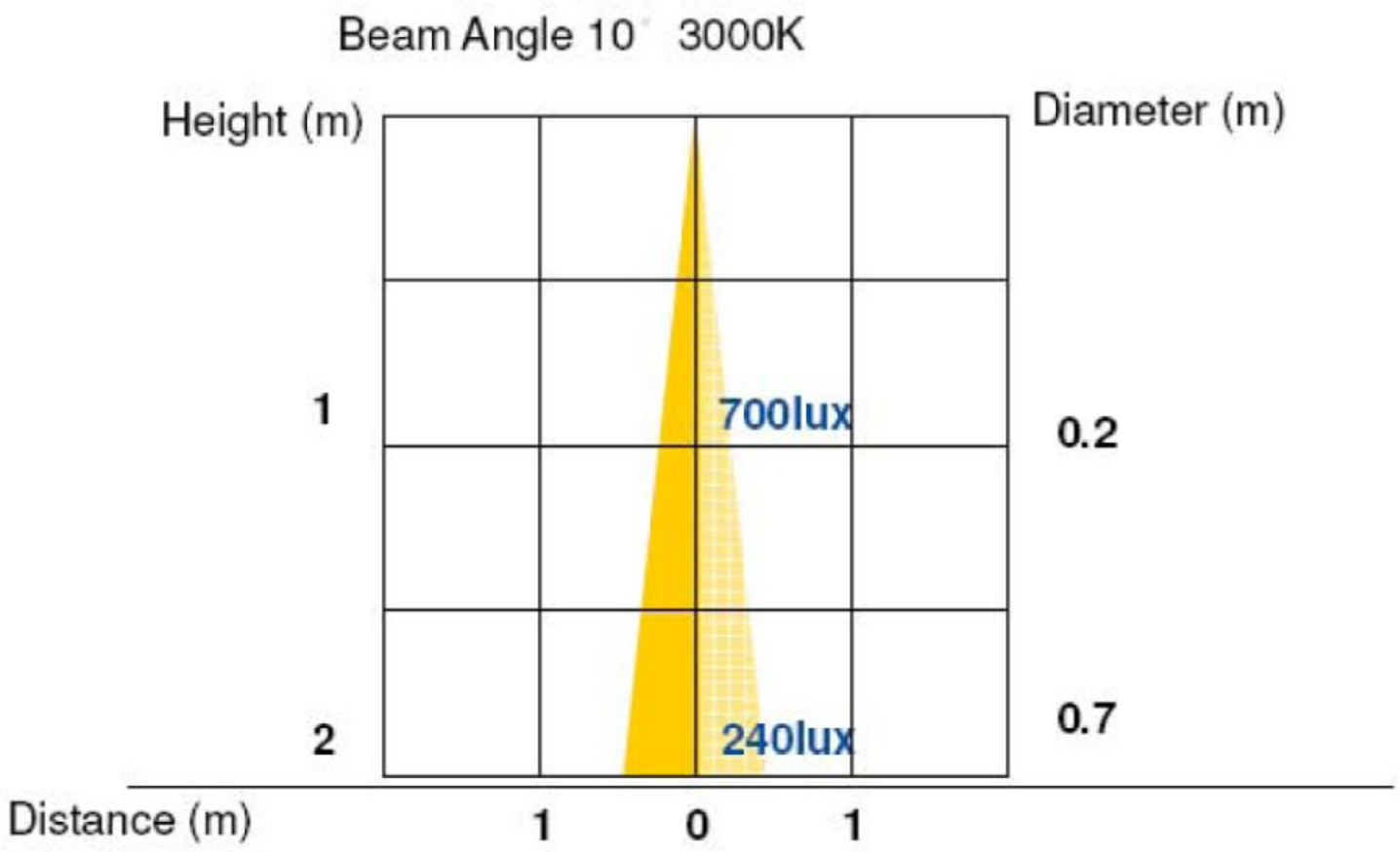
Performance



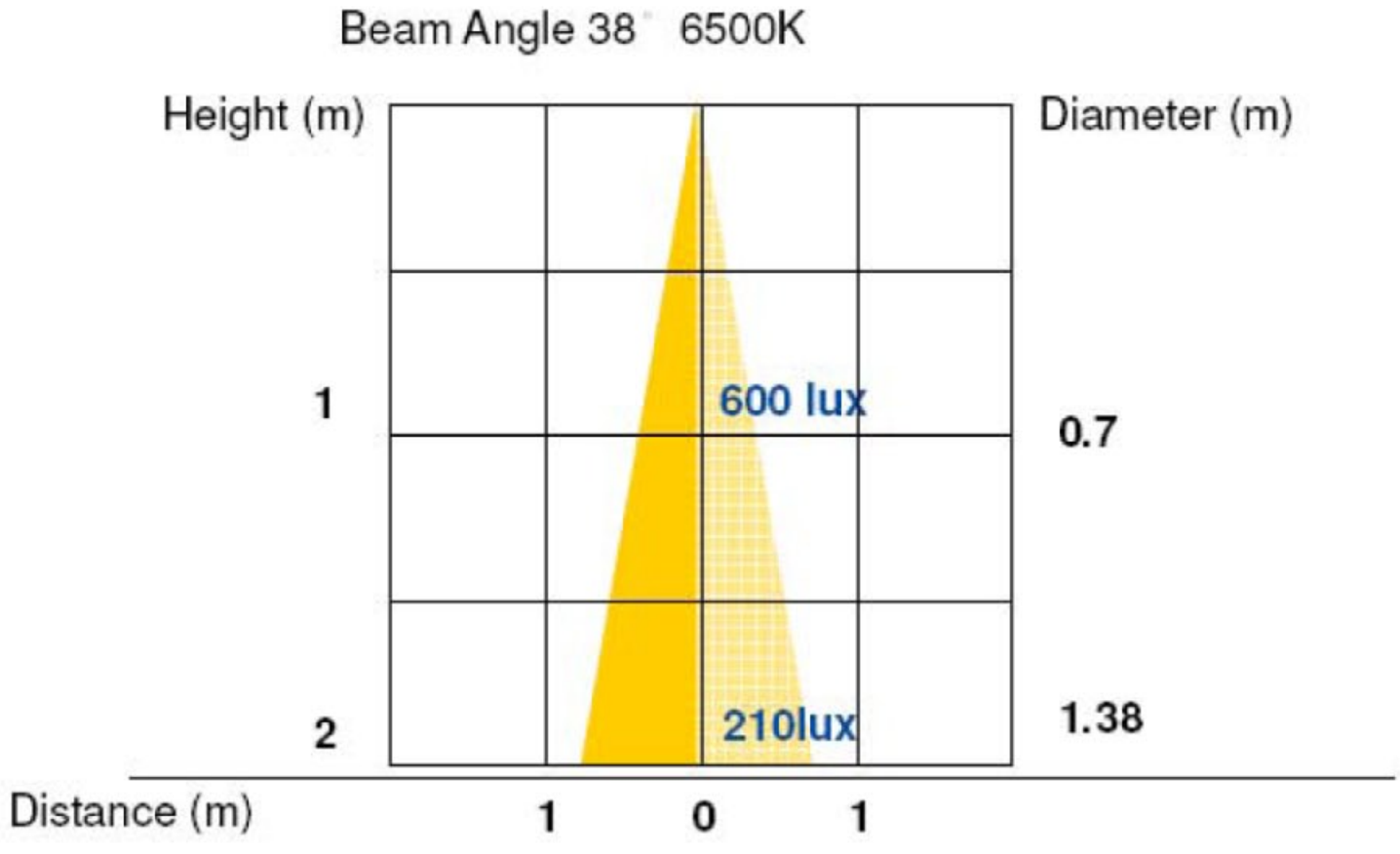
< Figure 2 MR16 beam angle 10 degree of cool white color >



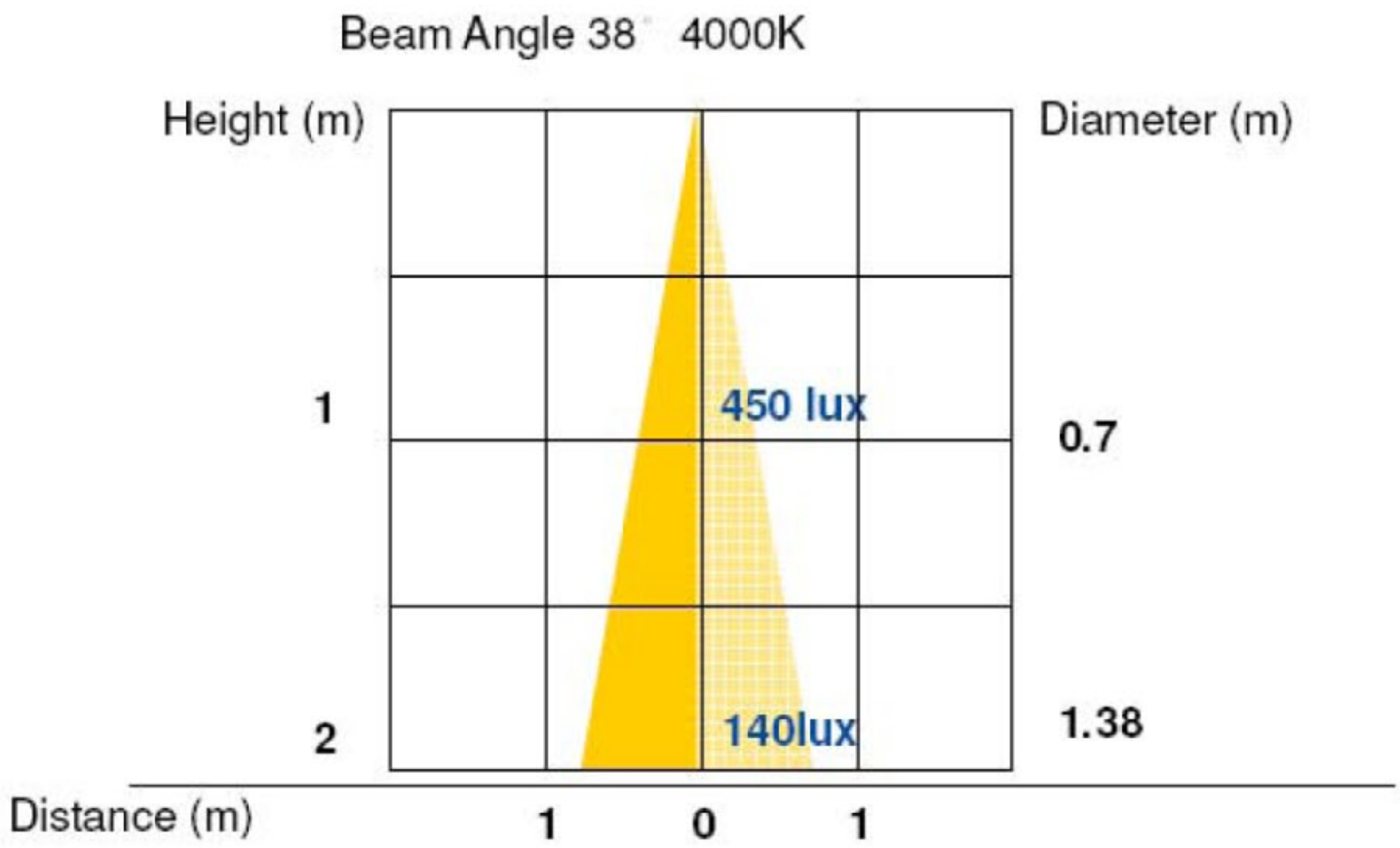
< Figure 3 MR16 beam angle 10 degree of neutral white color >



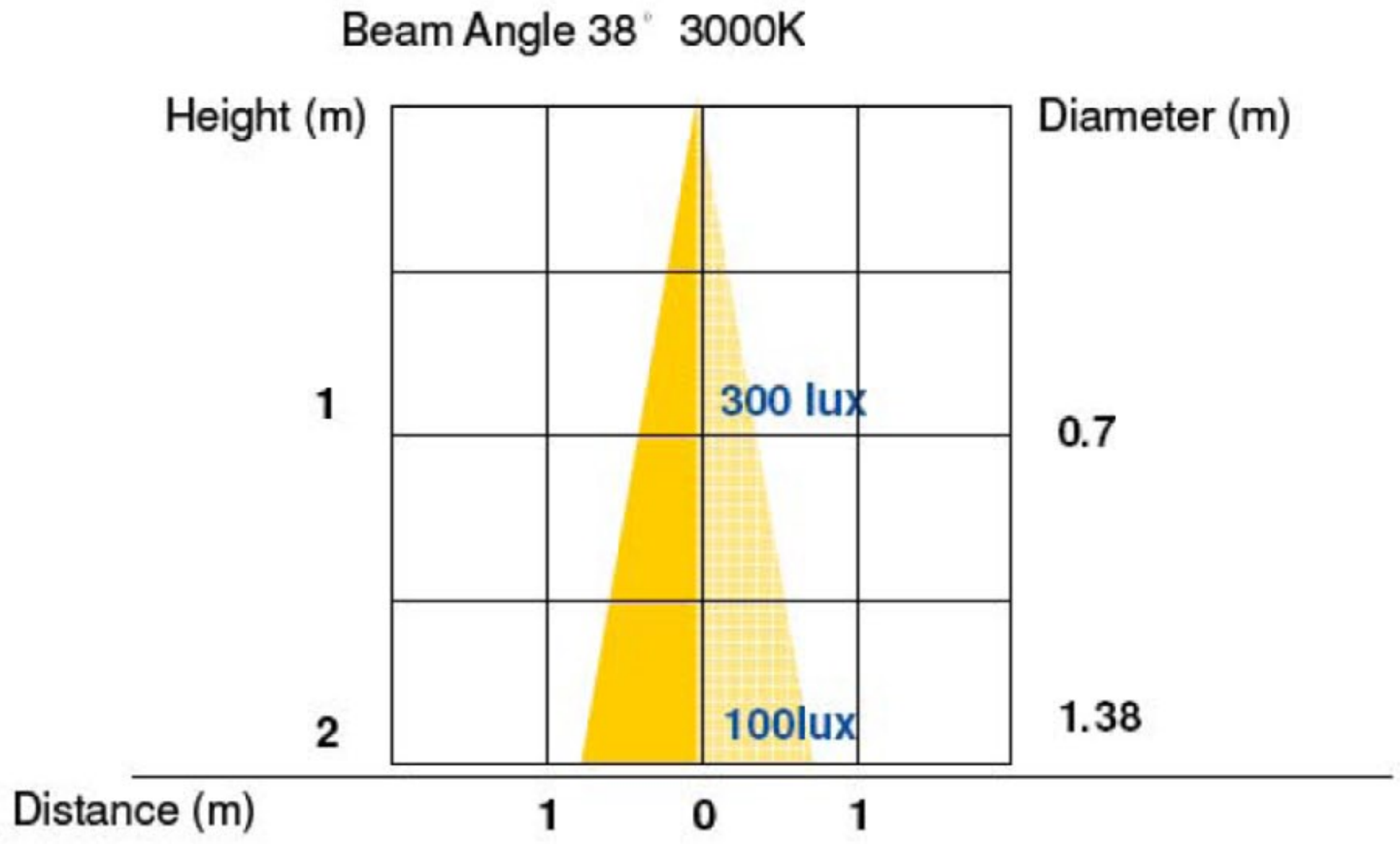
< Figure 4 MR16 beam angle 10 degree of warm white color >



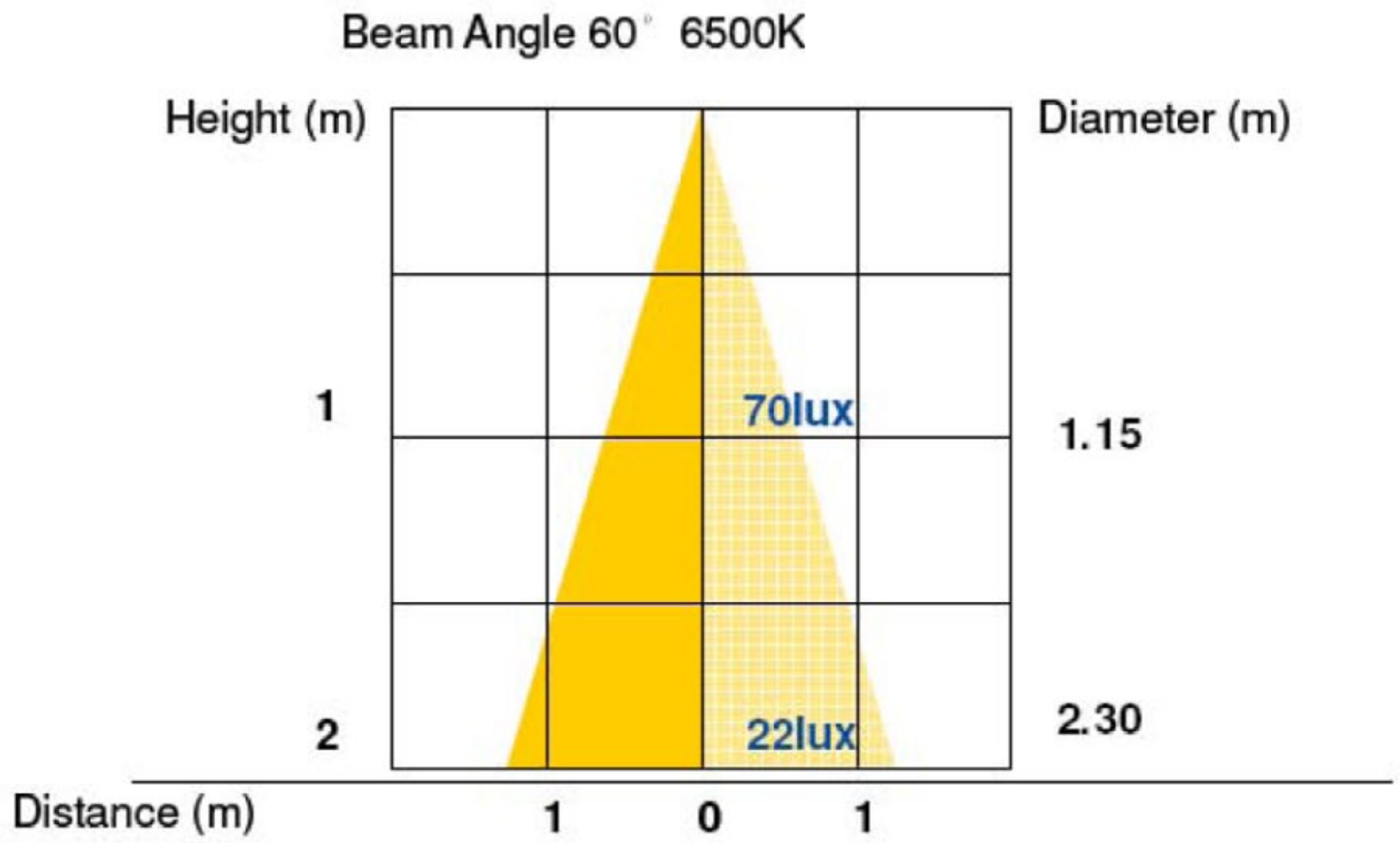
< Figure 5 MR16 beam angle 38 degree of cool white color >



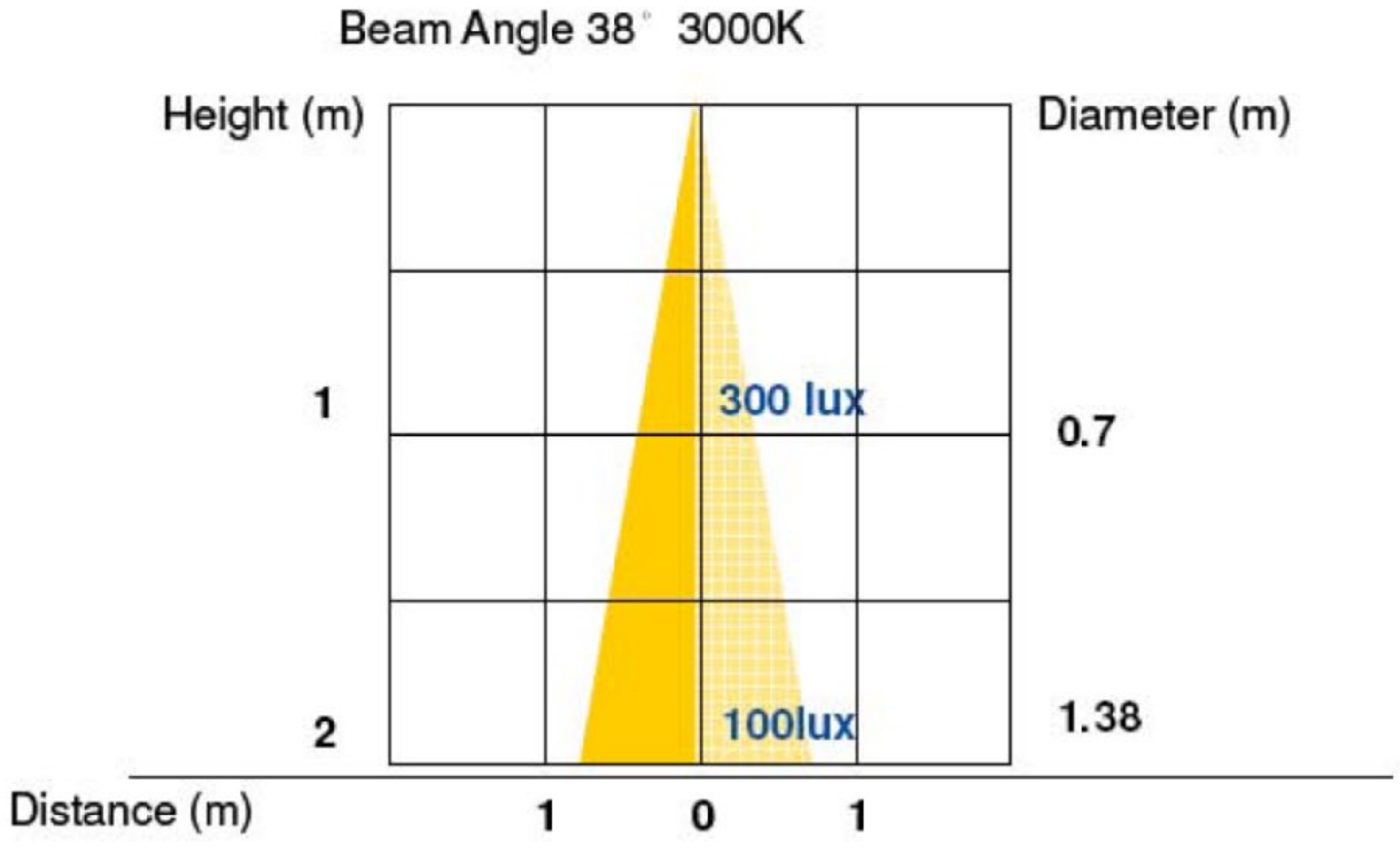
< Figure 6 MR16 beam angle 38 degree of neutral white color >



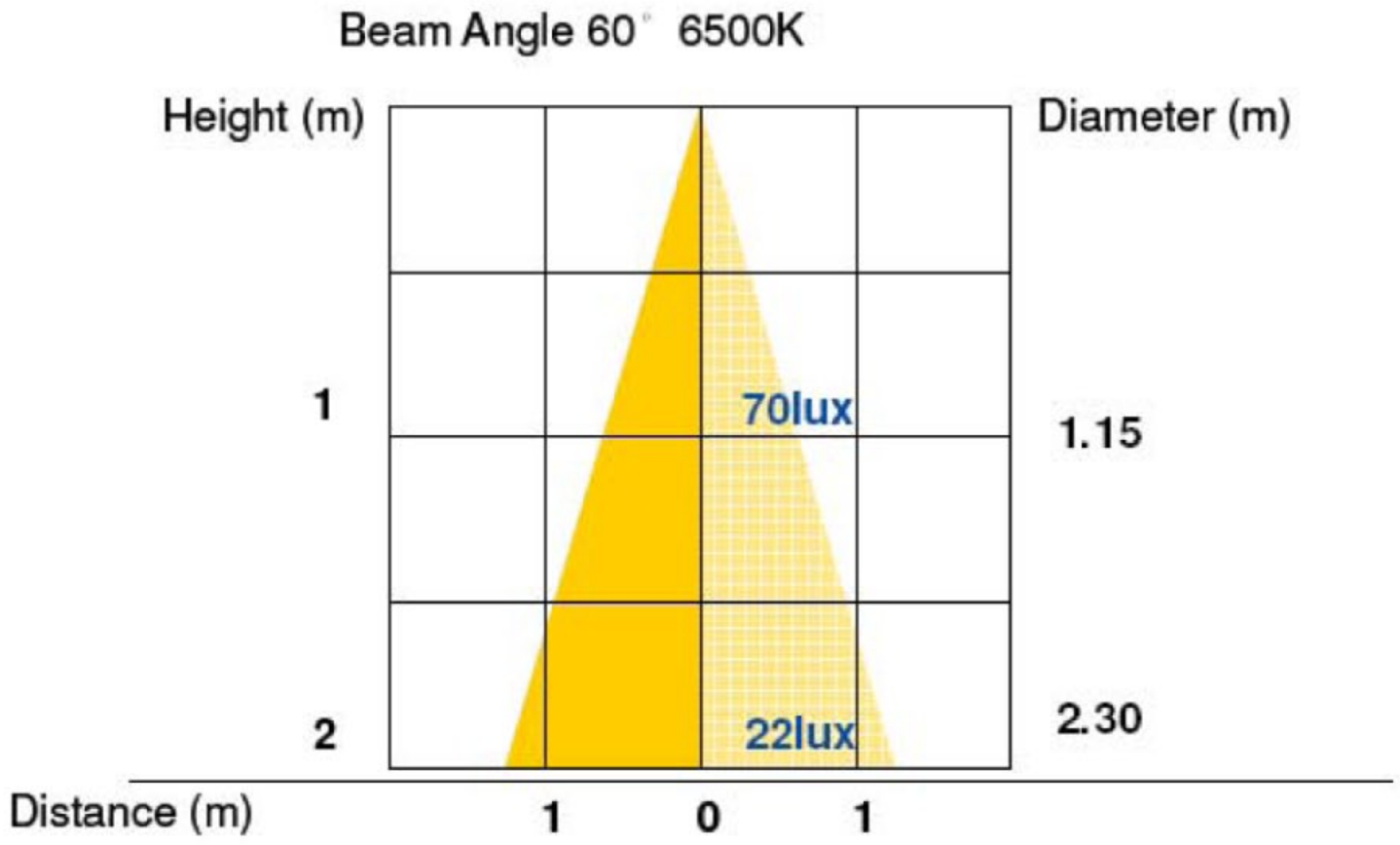
< Figure 7 MR16 beam angle 38 degree of warm white color >



< Figure 8 MR16 beam angle 60 degree of cool white color >



< Figure 7 MR16 beam angle 38 degree of warm white color >



< Figure 8 MR16 beam angle 60 degree of cool white color >

Light Pattern 10°/38°/60°

< Figure 11 Different beam angle from 1 meter picture >

ASSIST FORM for LED System

When Ts=65°C (heat sink temperature) and Tj=90°C

Package Dimensions

Dimension: 2" (L) x 2" (W) x 3 3/8" (H)

Weight: 83g (10 degree light pattern)
83g (38 degree light pattern)
53g (60 degree light pattern)

< Figure 12 Package appearance >

Notes

1. Do not connect more than one LED MR16 to a regular transformer. If you connect more than one and up to eight LED MR16, use our LED Driver FL-60W-LED12VDC. More than eight use our LED Driver FL-98W-LED12VDC.
2. Make sure the transformer's output voltage-Vrms do not exceed 15V as this will damage the LED MR16 built-in circuitry.
3. Do not use this product with ambient temperature over 40°C.
4. This product should only be used in a well ventilated condition. Do not install this product within an airtight lighting fixture.
5. Some electronic transformers may cause flickering phenomenon due to insufficient electronic power supply.
6. Indoor use only.

5W LED GU10

Built for downlights and spotlights, it offers an instant replacement in GU type fixtures. The wide choices for different angles for lens and CCT provide a convenient way in any application design. The low energy and long life characteristics allow the customers to lower both maintenance and energy costs.

Features

- High power factor
- Excellent thermal performance
- No UV light

Typical Applications

- Entertainment lighting
- Architectural lighting
- Landscape lighting
- Bollards/Security/Garden lighting
- Interior Commercial lighting

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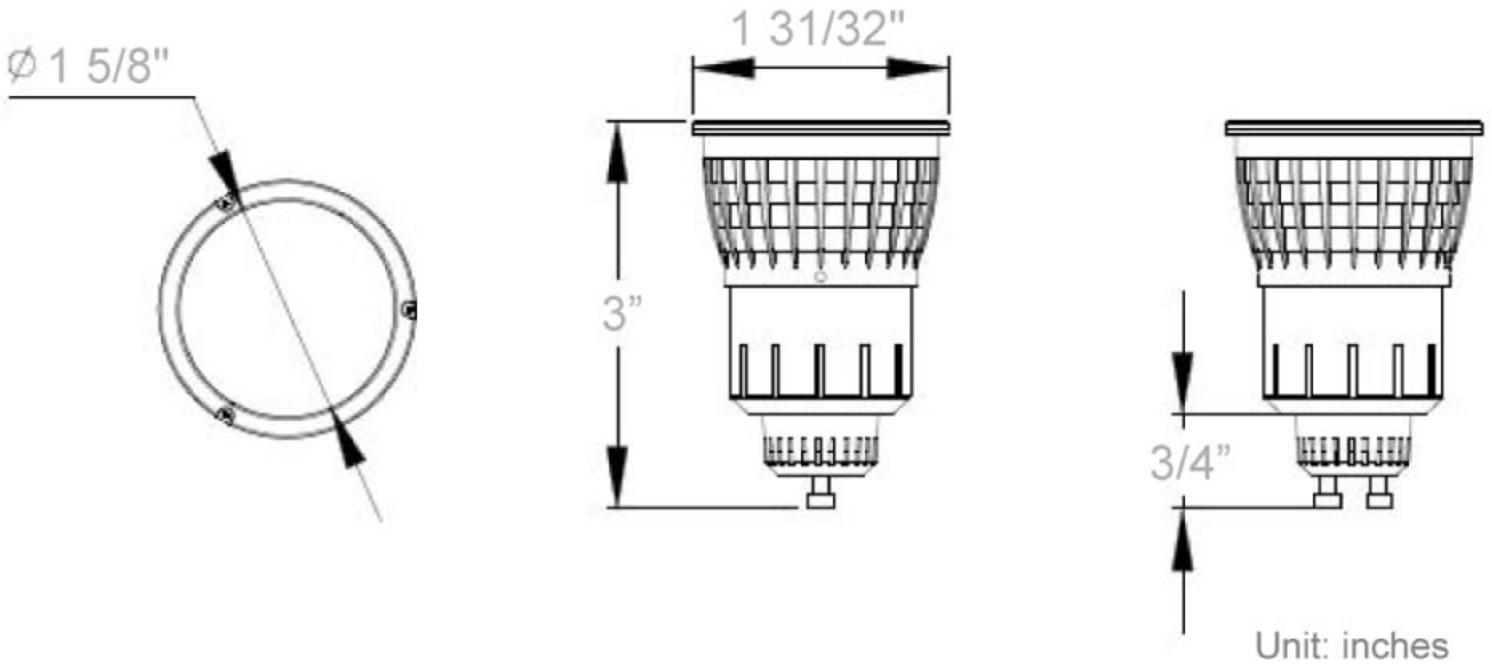
Product Dimensions



Unit: inches

Tolerance: 0.019 inches

< Figure 1 GU10 dimensions >

Material

- Heatsink: Aluminum die casting
- Bottom base: PBT, flammability V2 level
- Surface of heatsink: Anodization

Pin type

- GU 10

Absolute Maximum Ratings

< Table 2 GU10 absolute maximum ratings >

Parameter	Rating	Units
LED Junction Temperature	125	℃
Plastic bottom Temperature	50	℃
Operating Temperature	-30 ~ +40	℃
Storage Temperature	-40 ~ +60	℃
Heatsink Temperature	75	℃
Input Voltage	90 ~240	V

Specification

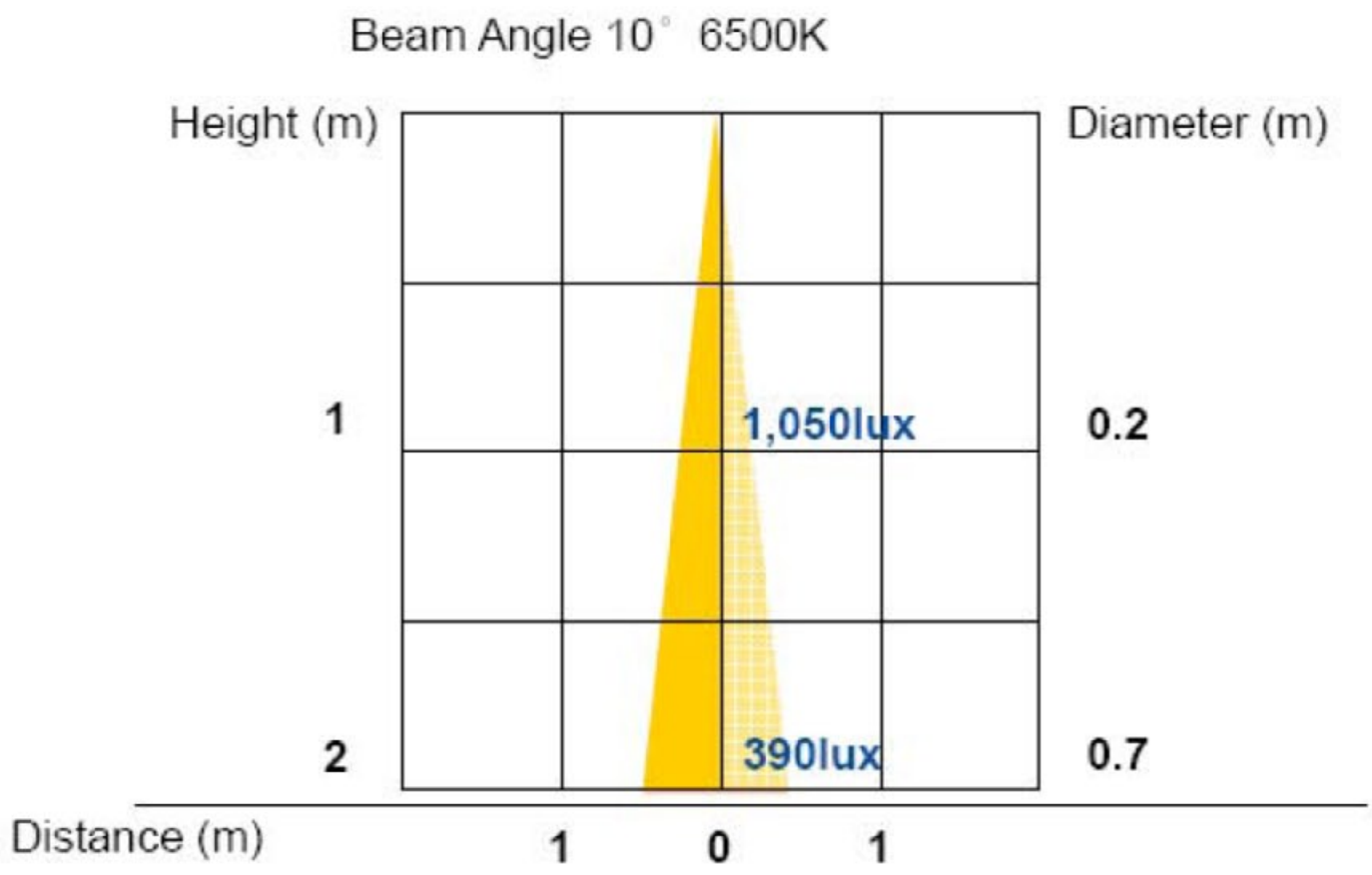
< Table 3 GU10 specifications >

Power consumption	Part Name	Color	Beam Angle	Lux @ 1m (Typ.)
5W	L5GU10-10CW	Cool White	10°	1,050
	L5GU10-10NW	Neutral White	10°	900
	L5GU10-10WW	Warm White	10°	700
	L5GU10-38CW	Cool White	38°	550
	L5GU10-38NW	Neutral White	38°	450
	L5GU10-38WW	Warm White	38°	300
	L5GU10-60CW	Cool White	60°	65
	L5GU10-60NW	Neutral White	60°	50
	L5GU10-60WW	Warm White	60°	40

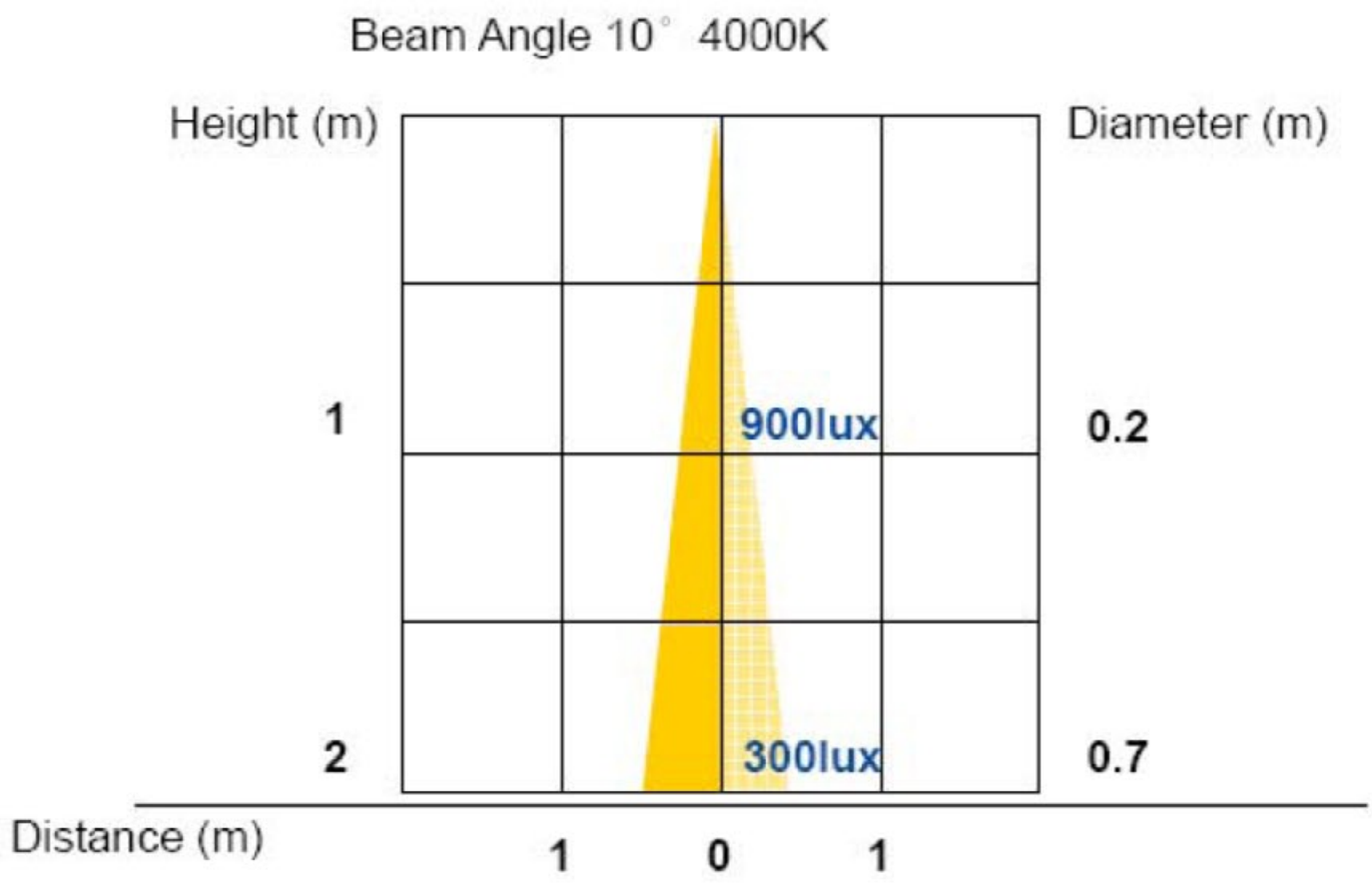
Note:

LED 38° available in Red and Blue. Green and Amber are Special Orders.
Lux value is measured under thermal balance condition (i.e. after 1 hour operation).

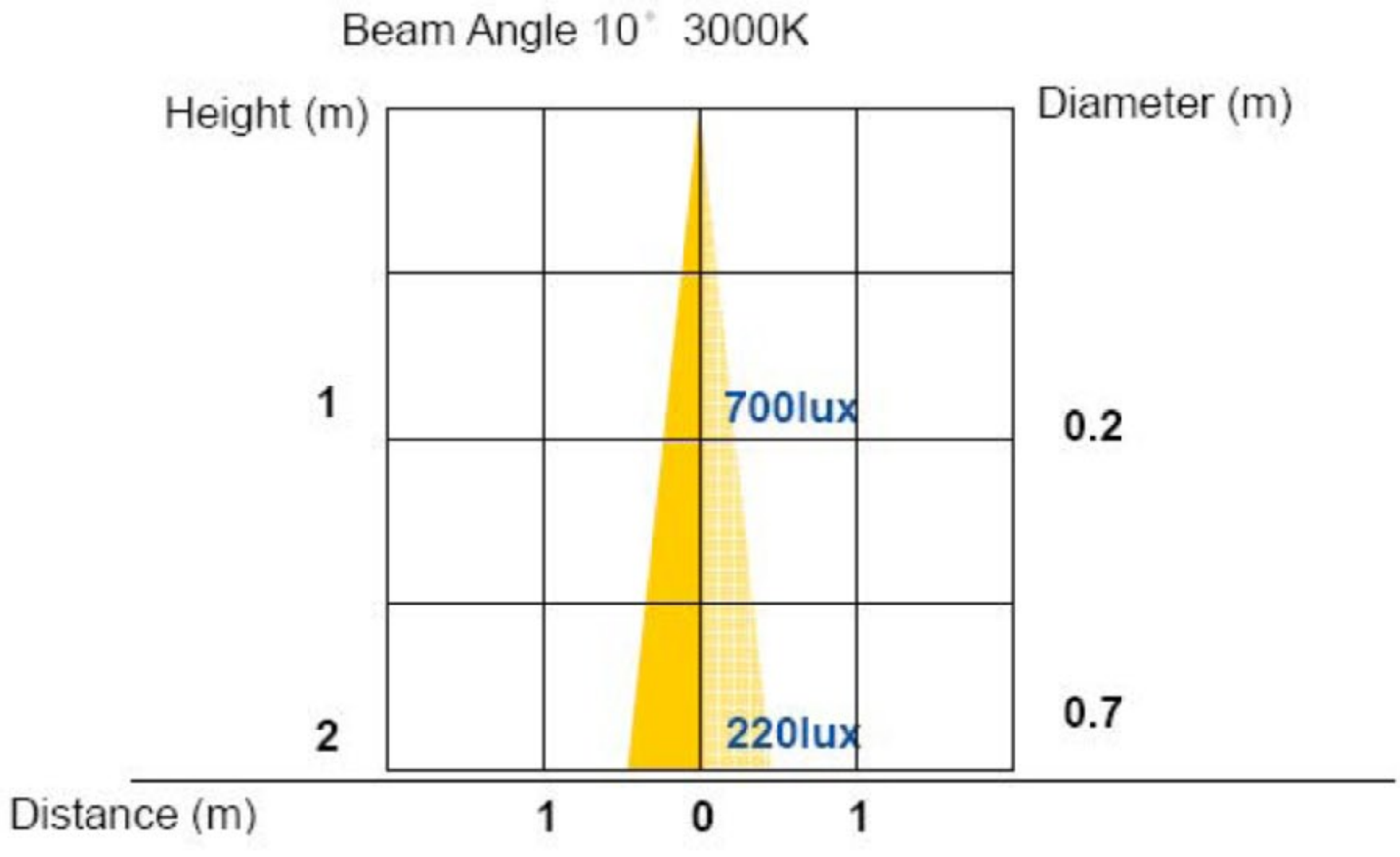
Performance



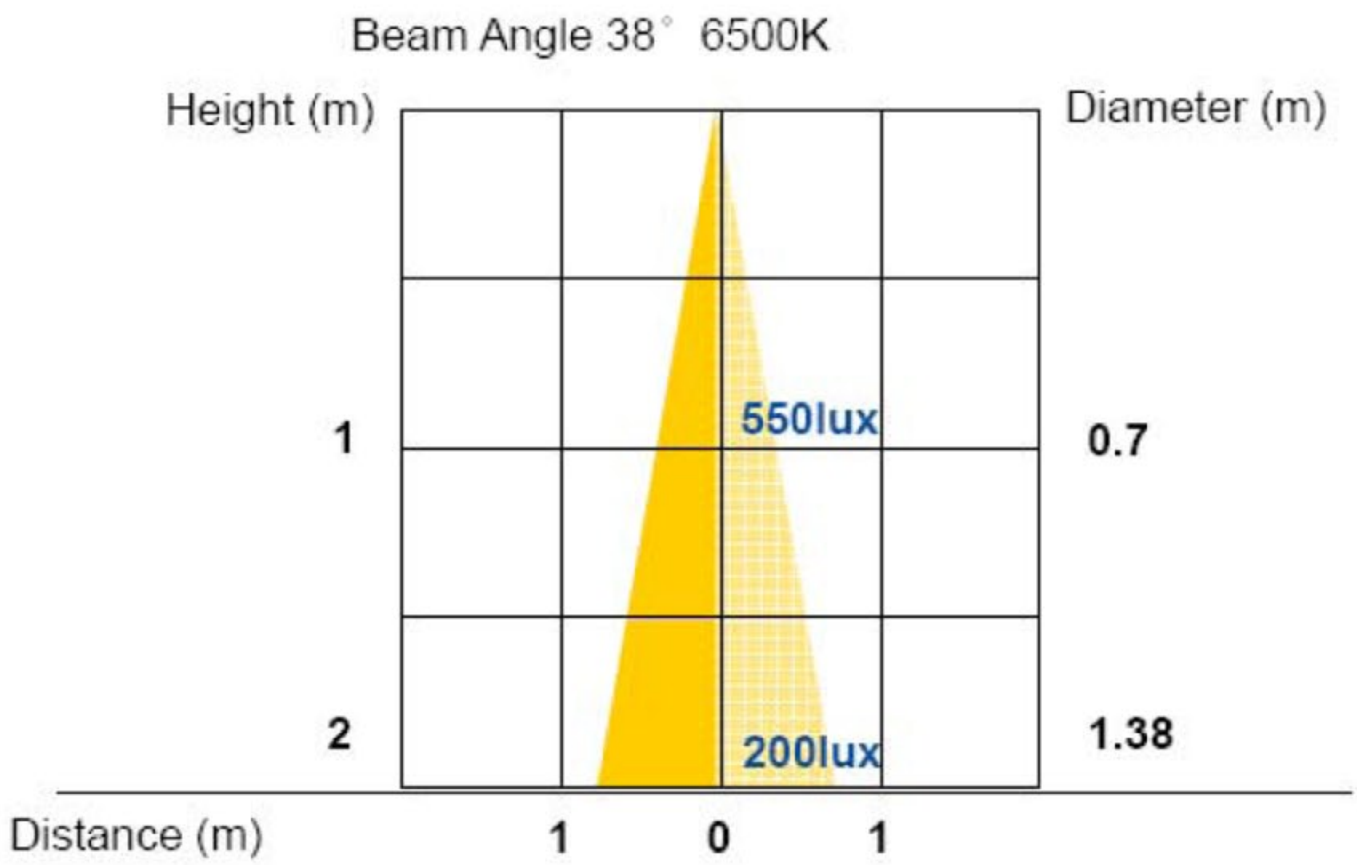
< Figure 2 GU10 beam angle 10 degree of cool white color >



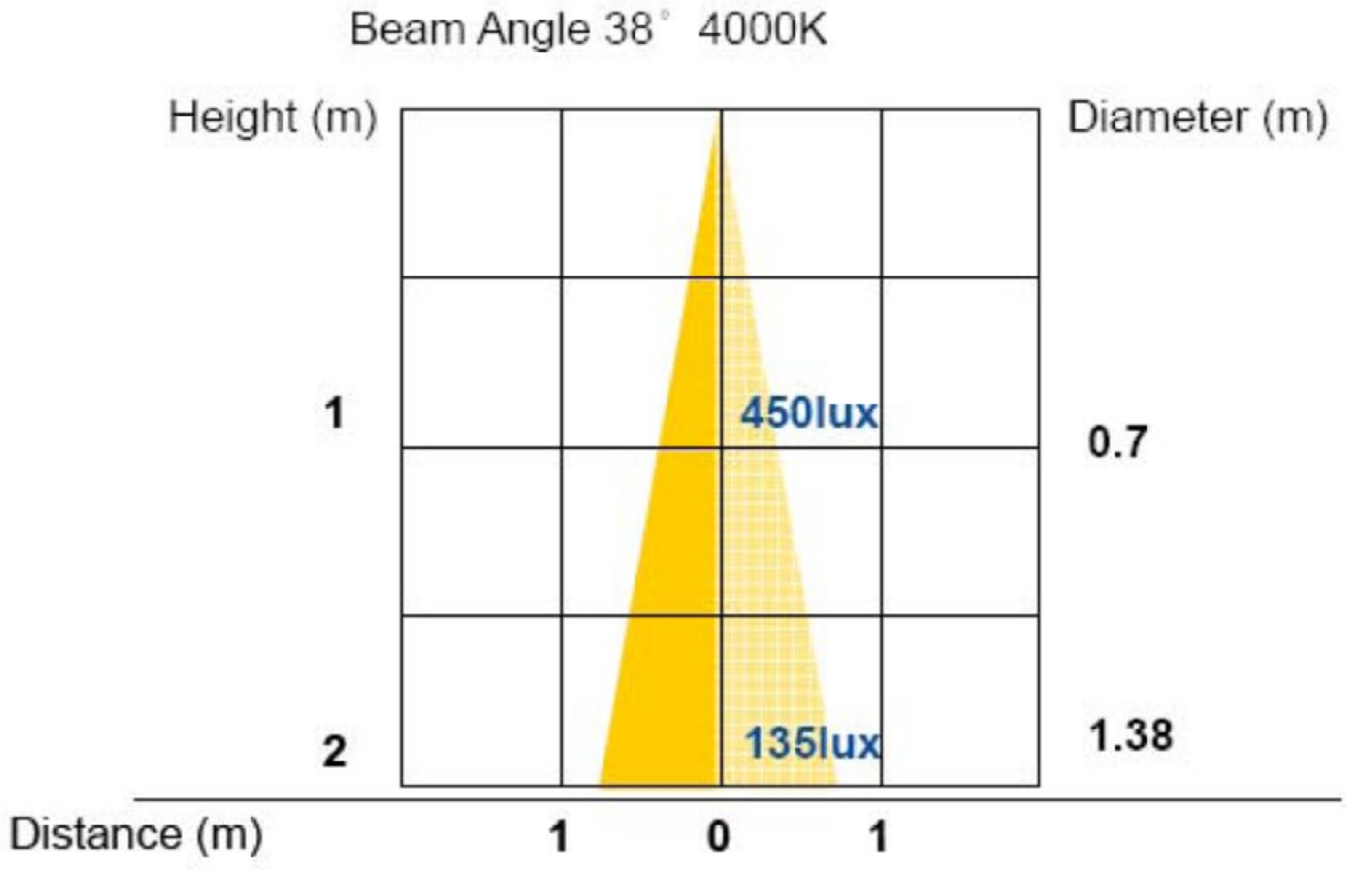
< Figure 3 GU10 beam angle 10 degree of neutral white color >



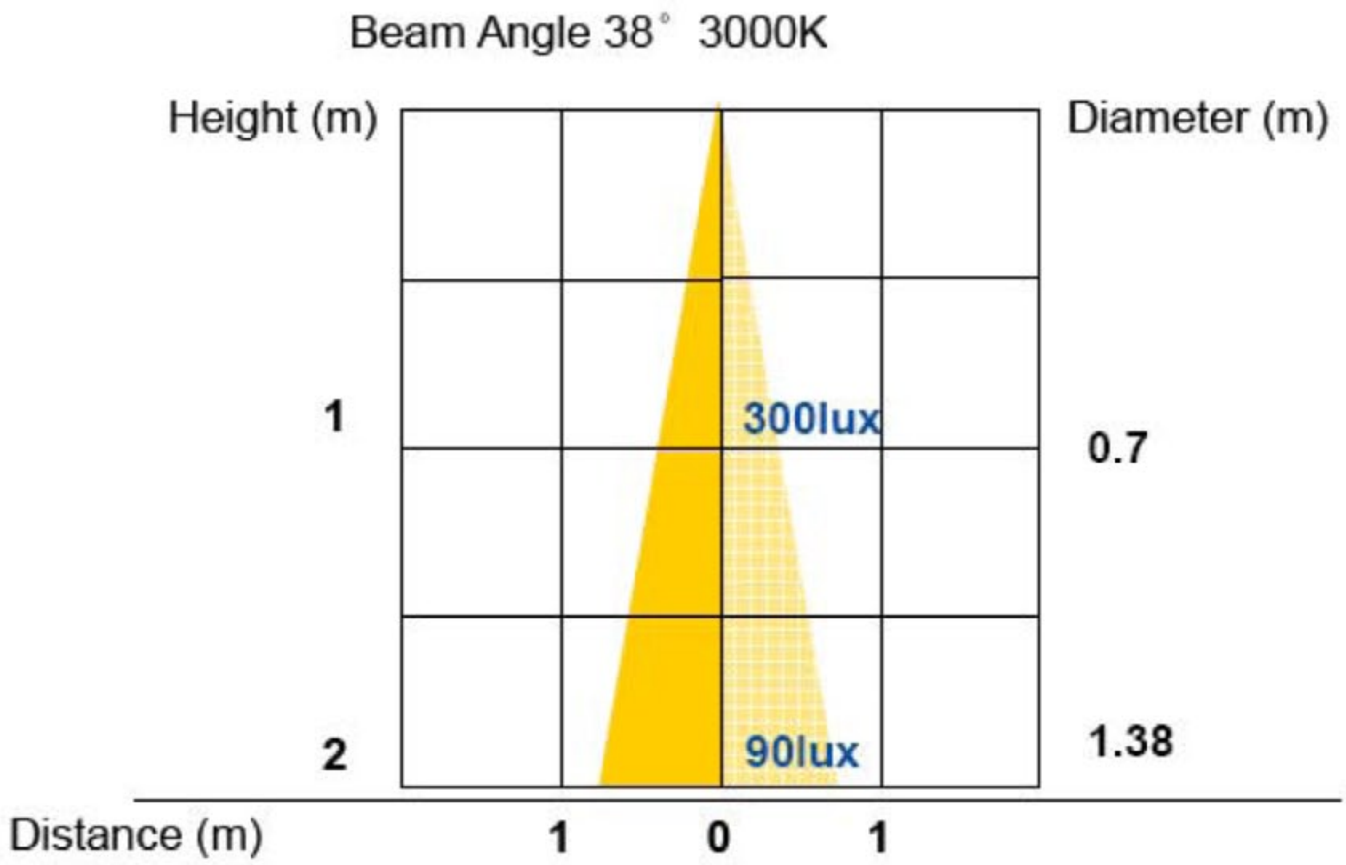
< Figure 4 GU10 beam angle 10 degree of warm white color >



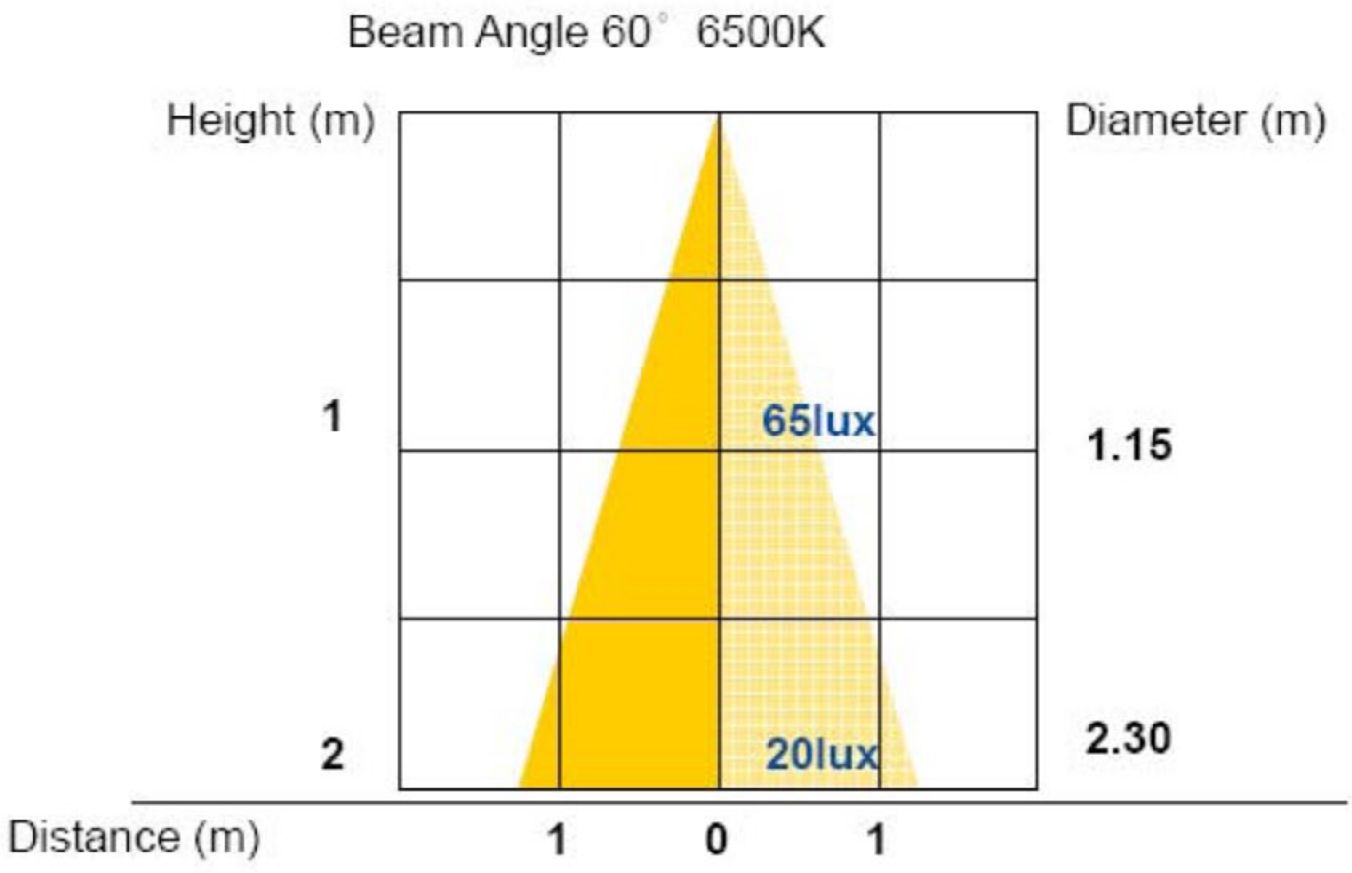
< Figure 5 GU10 beam angle 38 degree of cool white color >



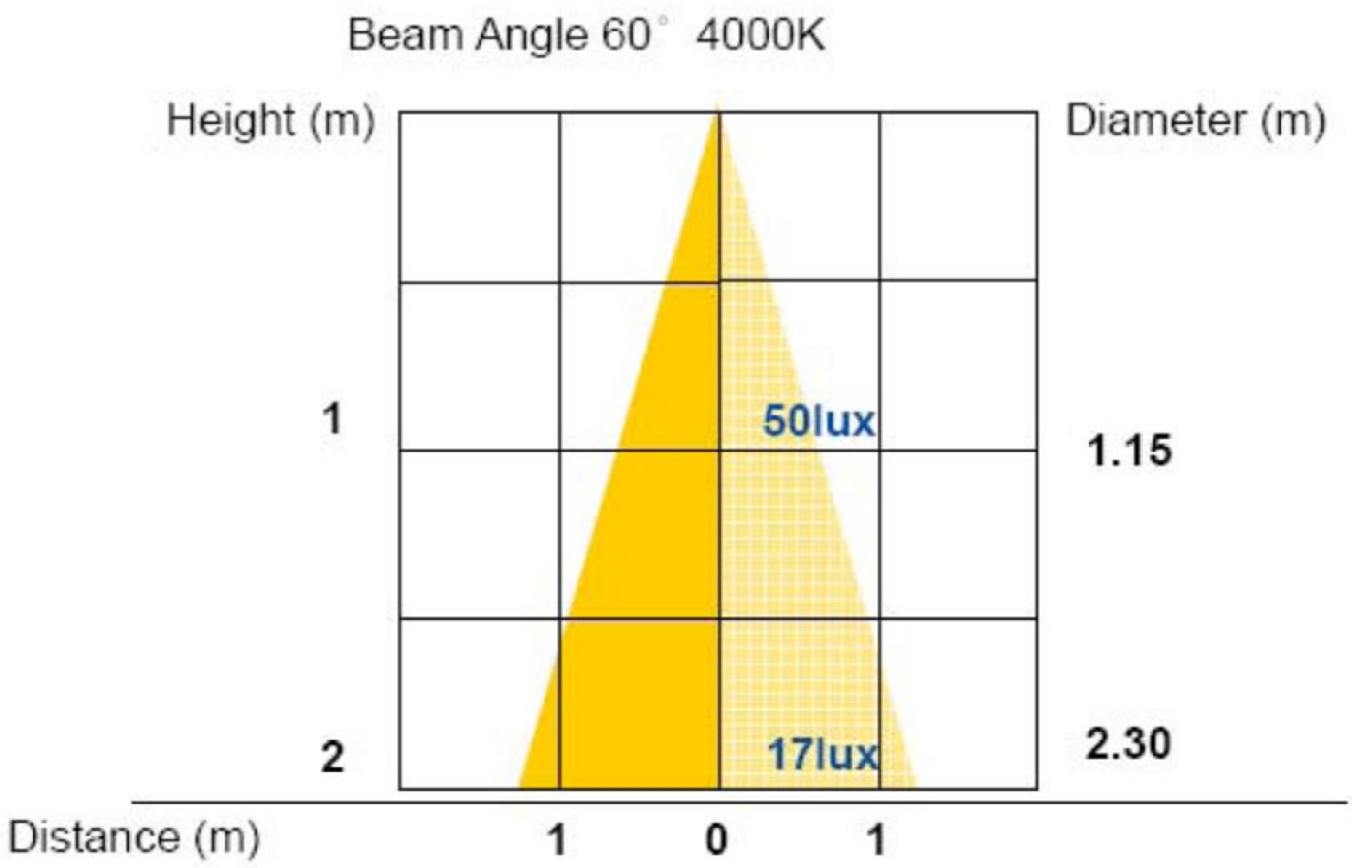
< Figure 6 GU10 beam angle 38 degree of neutral white color >



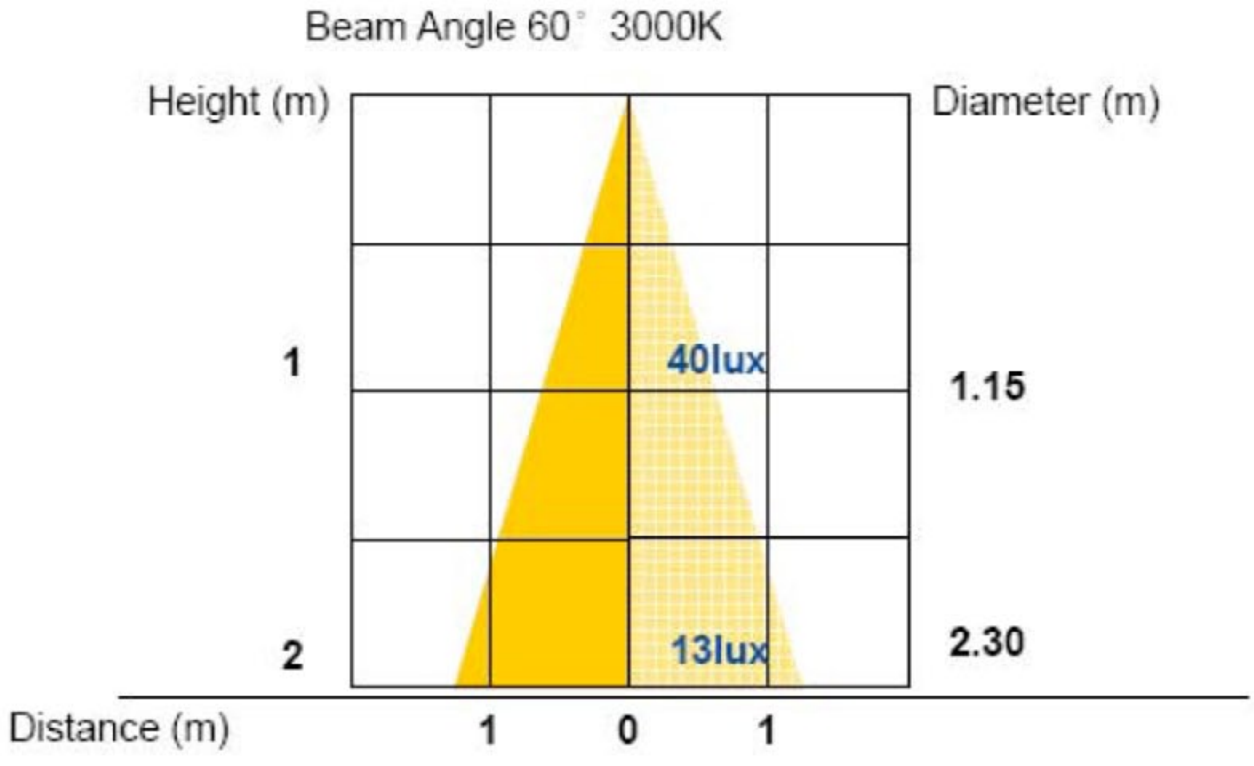
< Figure 7 GU10 beam angle 38 degree of warm white color >



< Figure 8 GU10 beam angle 68 degree of cool white color >



< Figure 9 GU10 beam angle 60 degree of neutral white color >



< Figure 10 GU10 beam angle 60 degree of warm white color >

Light Pattern 10°/38°/60°

< Figure 11 Different beam angle from 1 meter picture >

ASSIST FORM for LED System

When Ts=65°C (heat sink temperature) and Tj=90°C

Package Dimensions

Dimension: 2" (L) x 2" (W) x 3 3/8" (H)

Weight: 115g (10 degree light pattern)
115g (38 degree light pattern)
83g (60 degree light pattern)

< Figure 12 Package appearance >

Notes

1. Input voltage range: 90~240V AC.
2. Please do not use this product in high humidity.
3. Do not use this product with ambient temperature over 40C.
4. This product should only be used in a well ventilated condition. Do not install this product within an airtight lighting fixture.
5. Do not disassemble this product under any circumstances.
6. Indoor use only.

5W LED PAR16

Built for downlights and spotlights, it offers an instant replacement in PAR type fixtures. The wide choices for different angles for lens and CCT provide a convenient way in any application design. The low energy and long life characteristics allow the customers to lower both maintenance and energy costs.

Features

- High power factor
- Excellent thermal performance
- No UV light

Typical Applications

- Entertainment lighting
- Architectural lighting
- Landscape lighting
- Bollards/Security/Garden lighting
- Interior Commercial lighting

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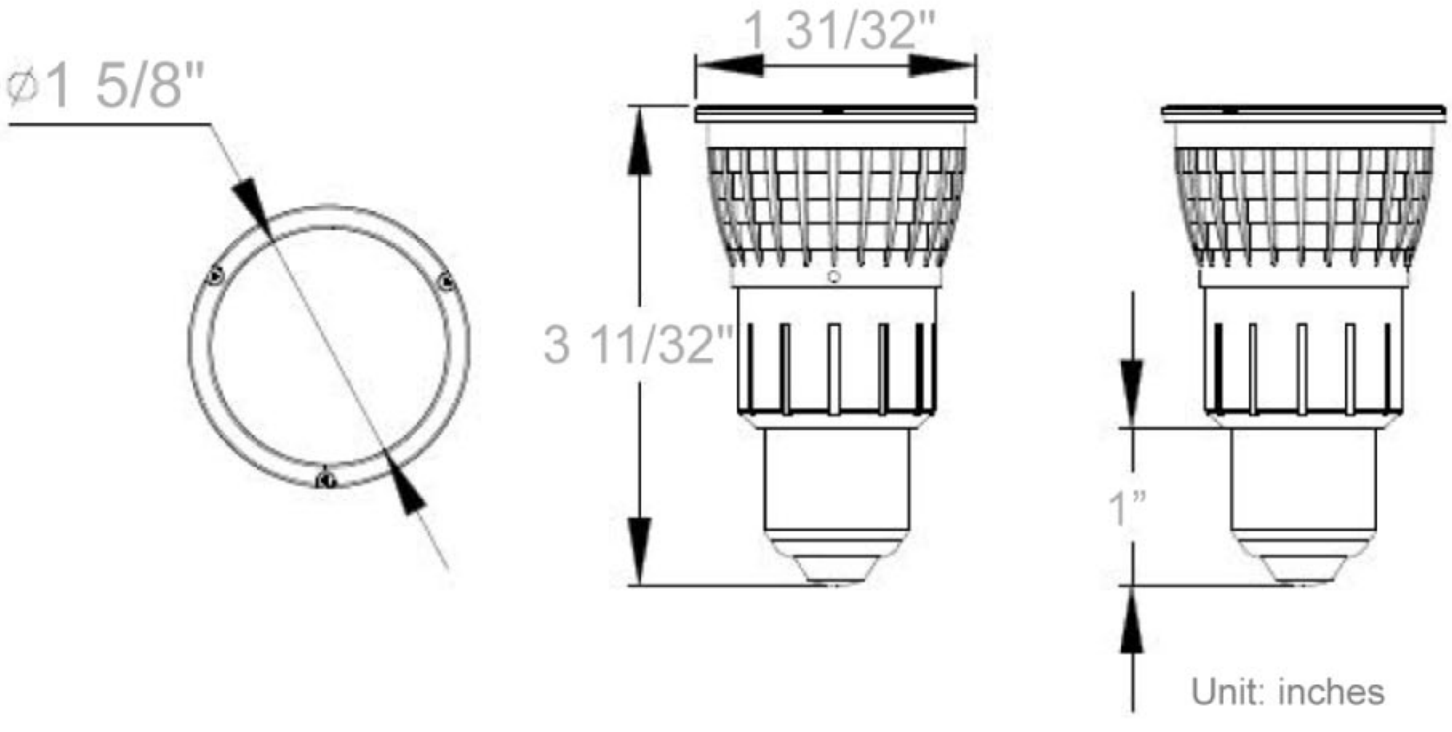
Product Dimensions



< Figure 1 PAR16 dimensions >

Material

- Heatsink: Aluminum die casting
- Bottom base: PBT, flammability V2 level
- Surface of heatsink: Anodization

Pin type

- E26/E27

Absolute Maximum Ratings

< Table 2 PAR16 absolute maximum ratings >

Parameter	Rating	Units
LED Junction Temperature	125	℃
Plastic bottom Temperature	50	℃
Operating Temperature	-30 ~ +40	℃
Storage Temperature	-40 ~ +60	℃
Heatsink Temperature	75	℃
Input Voltage	90 ~240	V

Specification

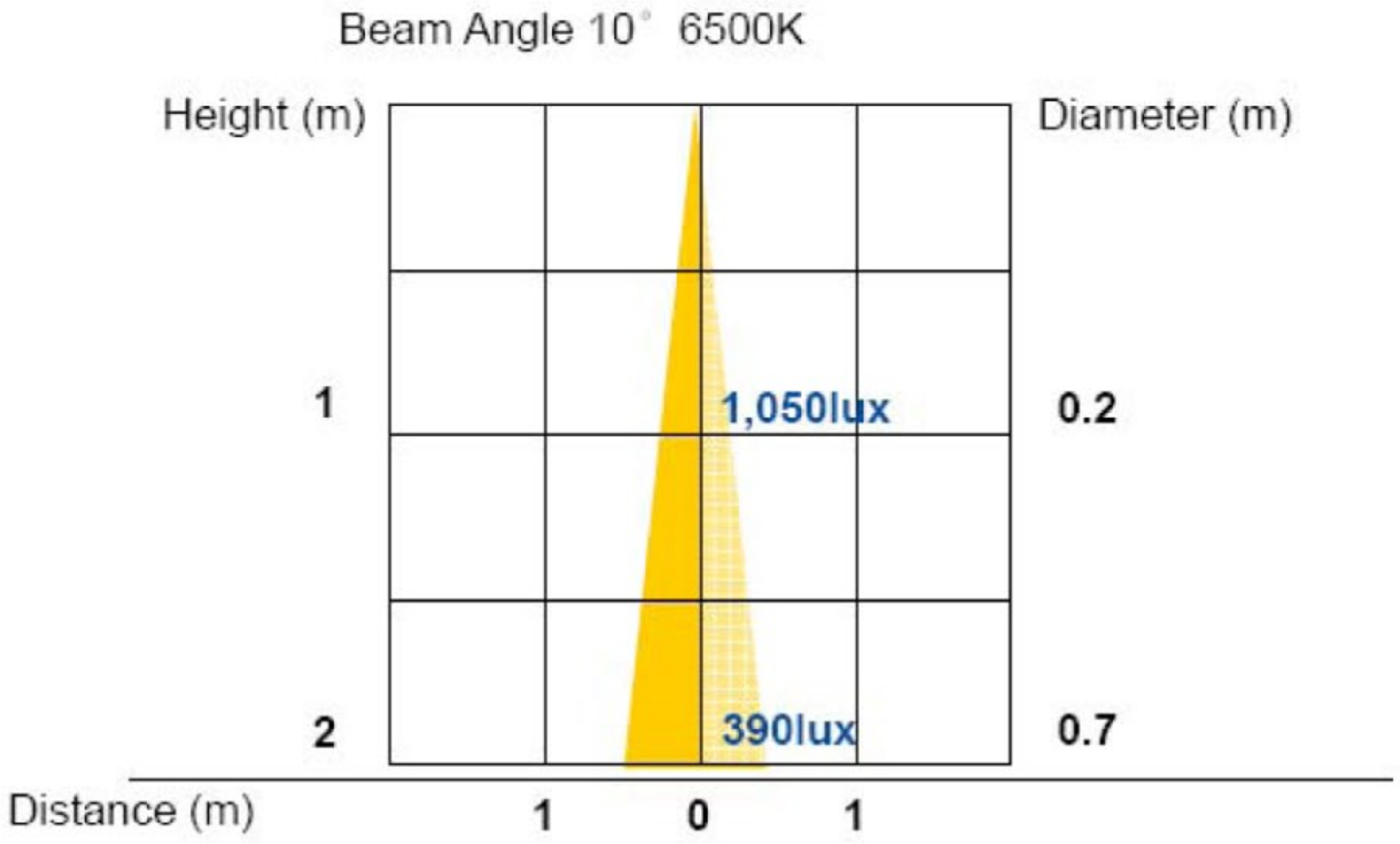
< Table 3 PAR16 specifications >

Power consumption	Part Name	Color	Beam Angle	Lux @ 1m (Typ.)
5W	L5PAR16-10CW	Cool White	10°	1,050
	L5PAR16-10NW	Neutral White	10°	900
	L5PAR16-10WW	Warm White	10°	700
	L5PAR16-38CW	Cool White	38°	550
	L5PAR16-38NW	Neutral White	38°	450
	L5PAR16-38WW	Warm White	38°	300
	L5PAR16-60CW	Cool White	60°	65
	L5PAR16-60NW	Neutral White	60°	50
	L5PAR16-60WW	Warm White	60°	40

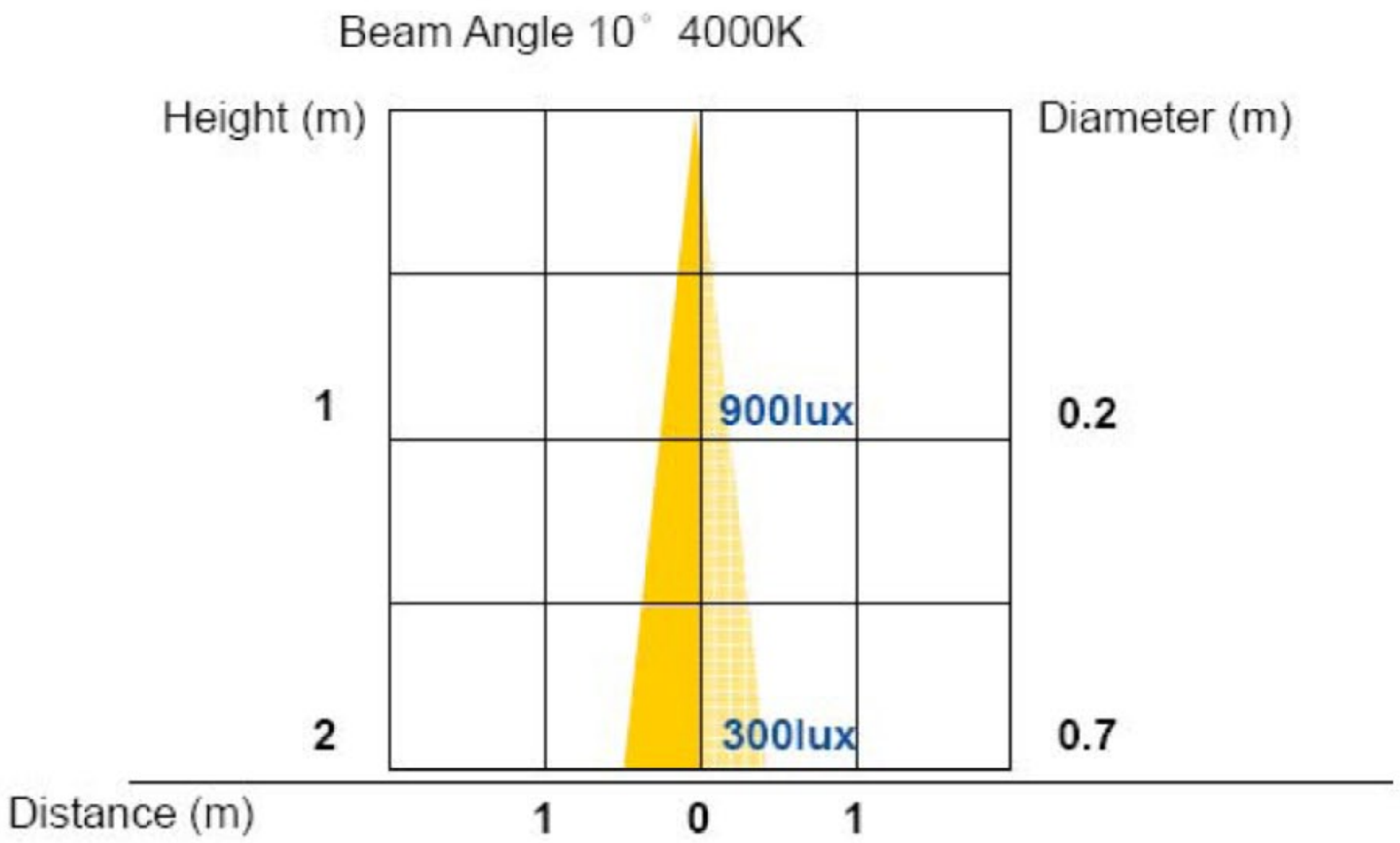
Note:

LED 38° available in Red and Blue. Green and Amber are Special Orders.
Lux value is measured under thermal balance condition (i.e. after 1 hour operation).

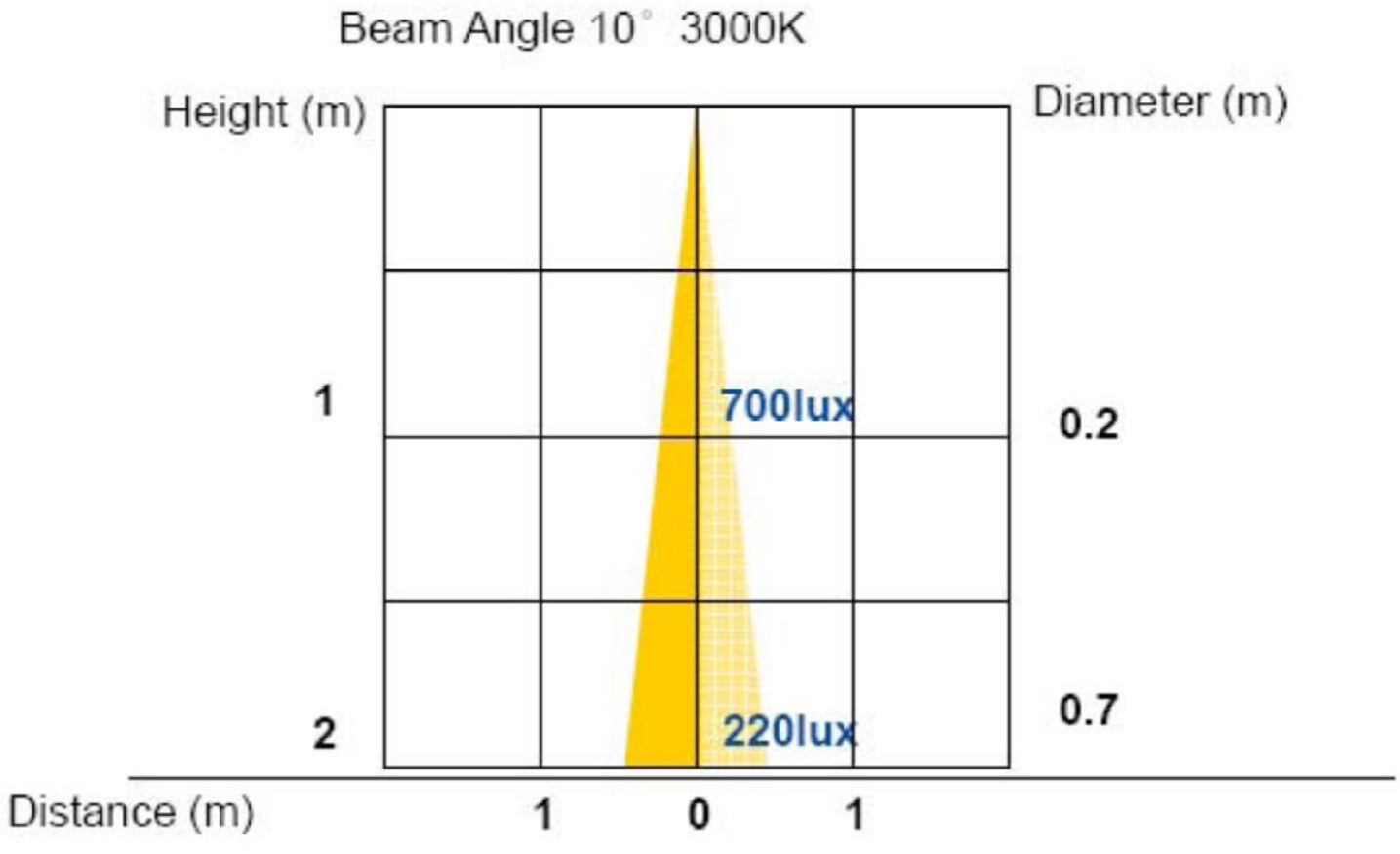
Performance



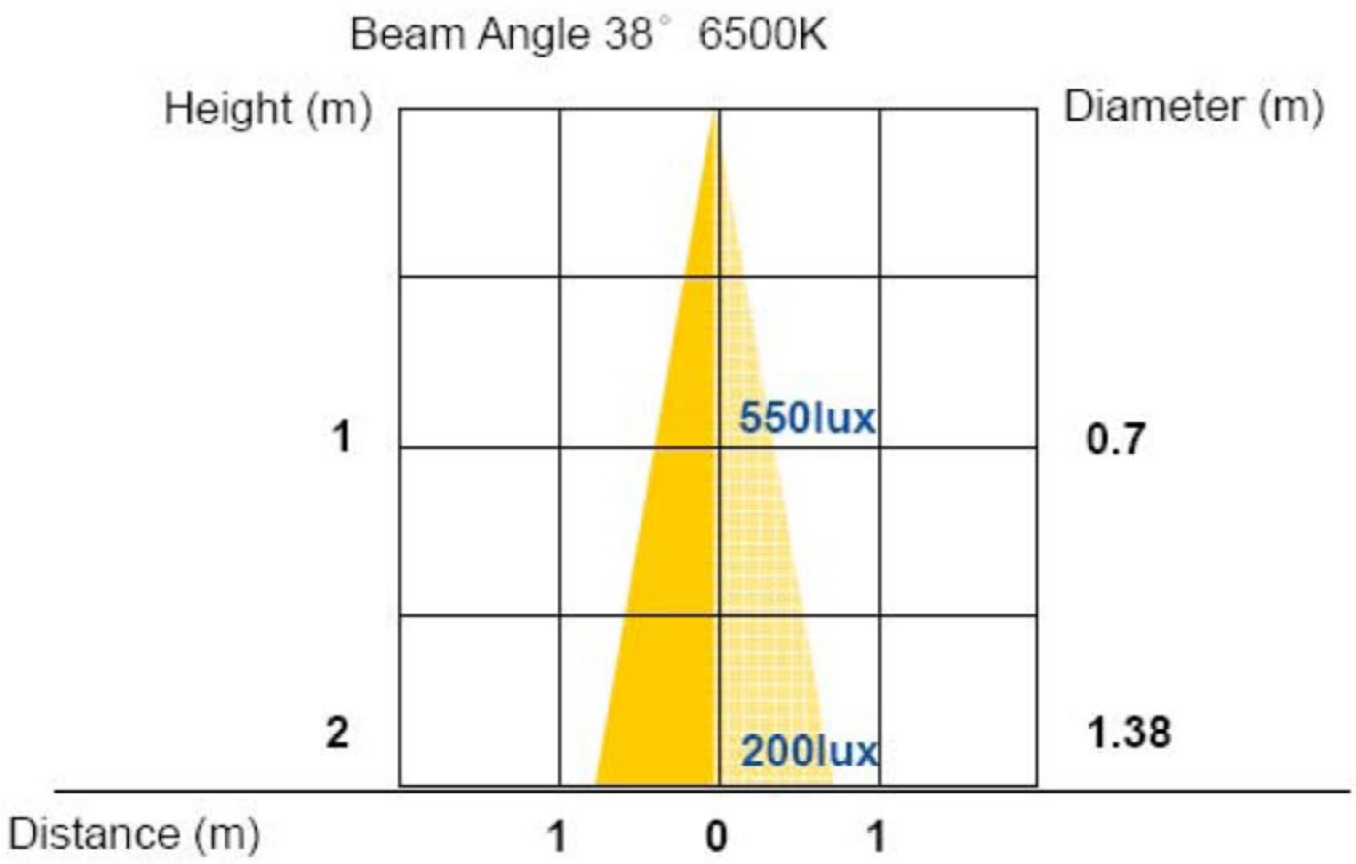
< Figure 2 PAR16 beam angle 10 degree of cool white color >



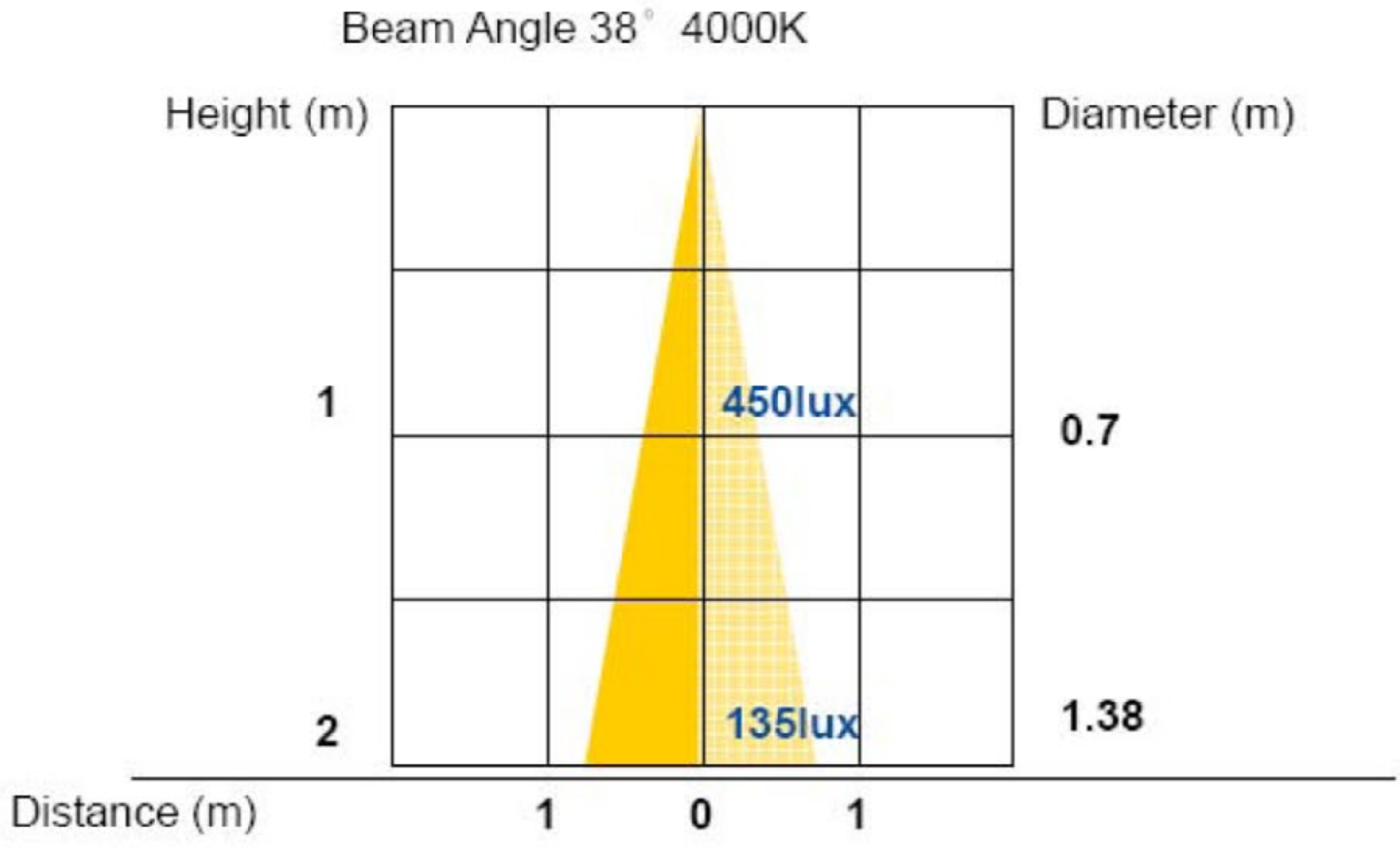
< Figure 3 PAR16 beam angle 10 degree of neutral white color >



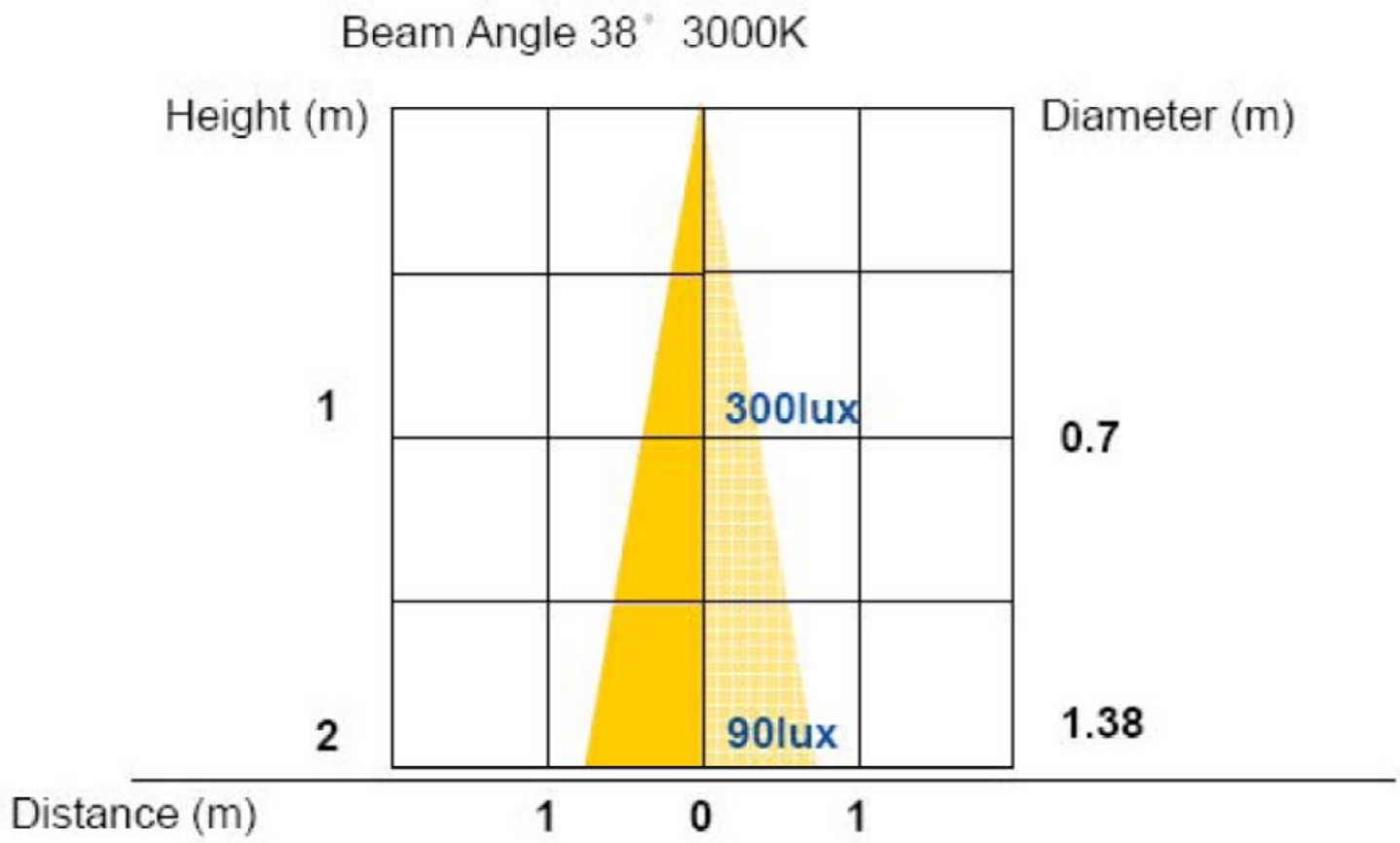
< Figure 4 PAR16 beam angle 10 degree of warm white color >



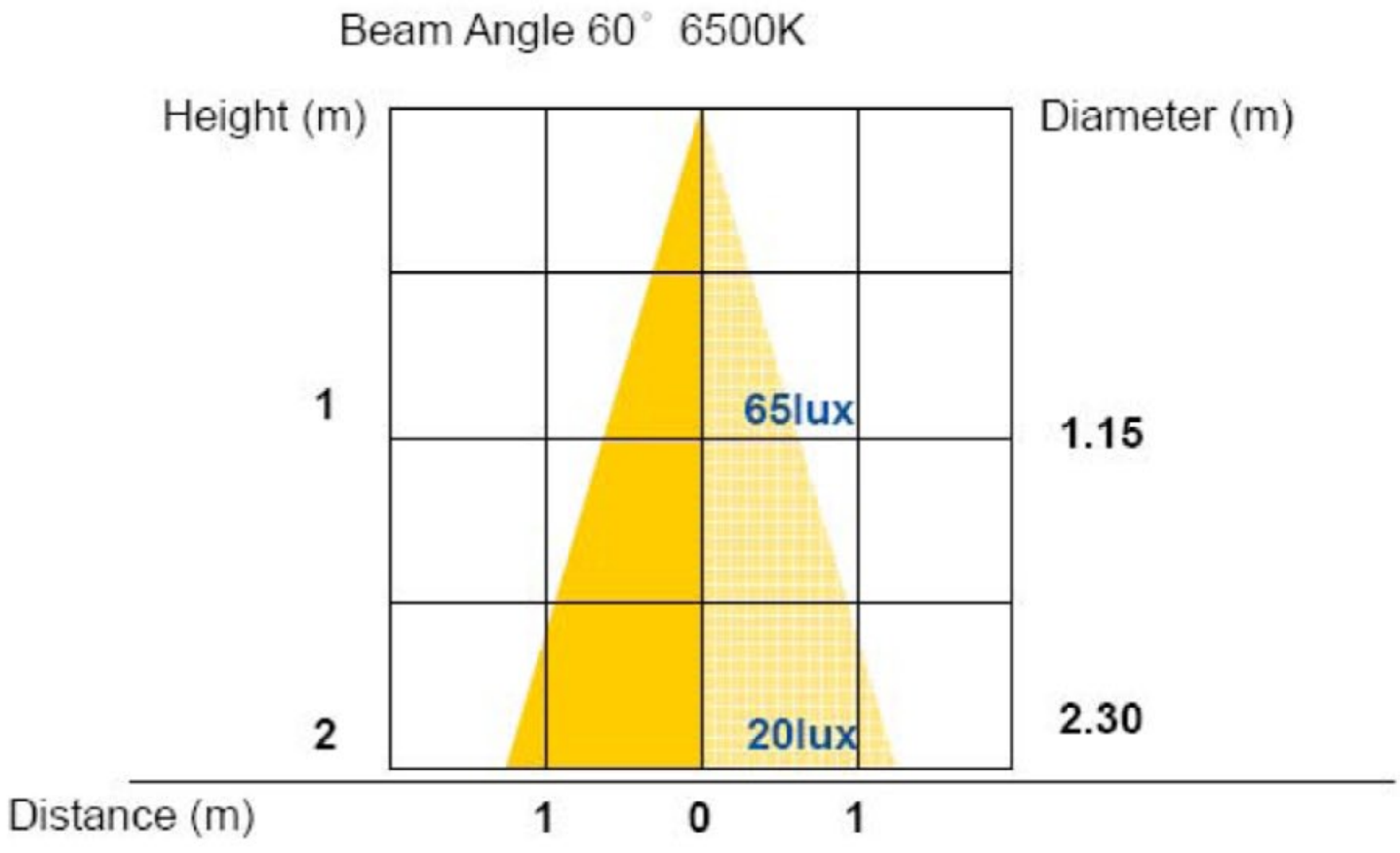
< Figure 5 PAR16 beam angle 38 degree of cool white color >



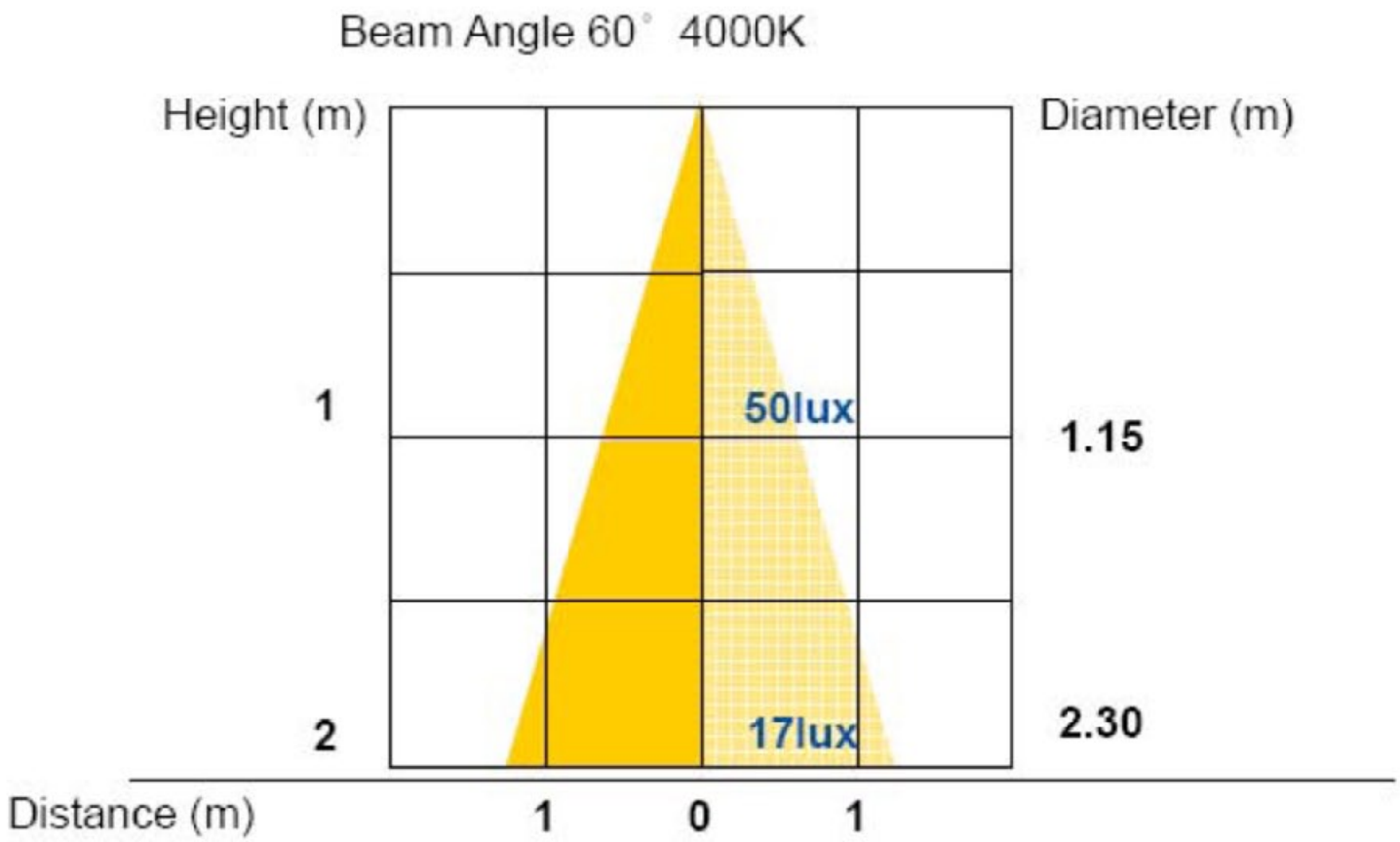
< Figure 6 PAR16 beam angle 38 degree of neutral white color >



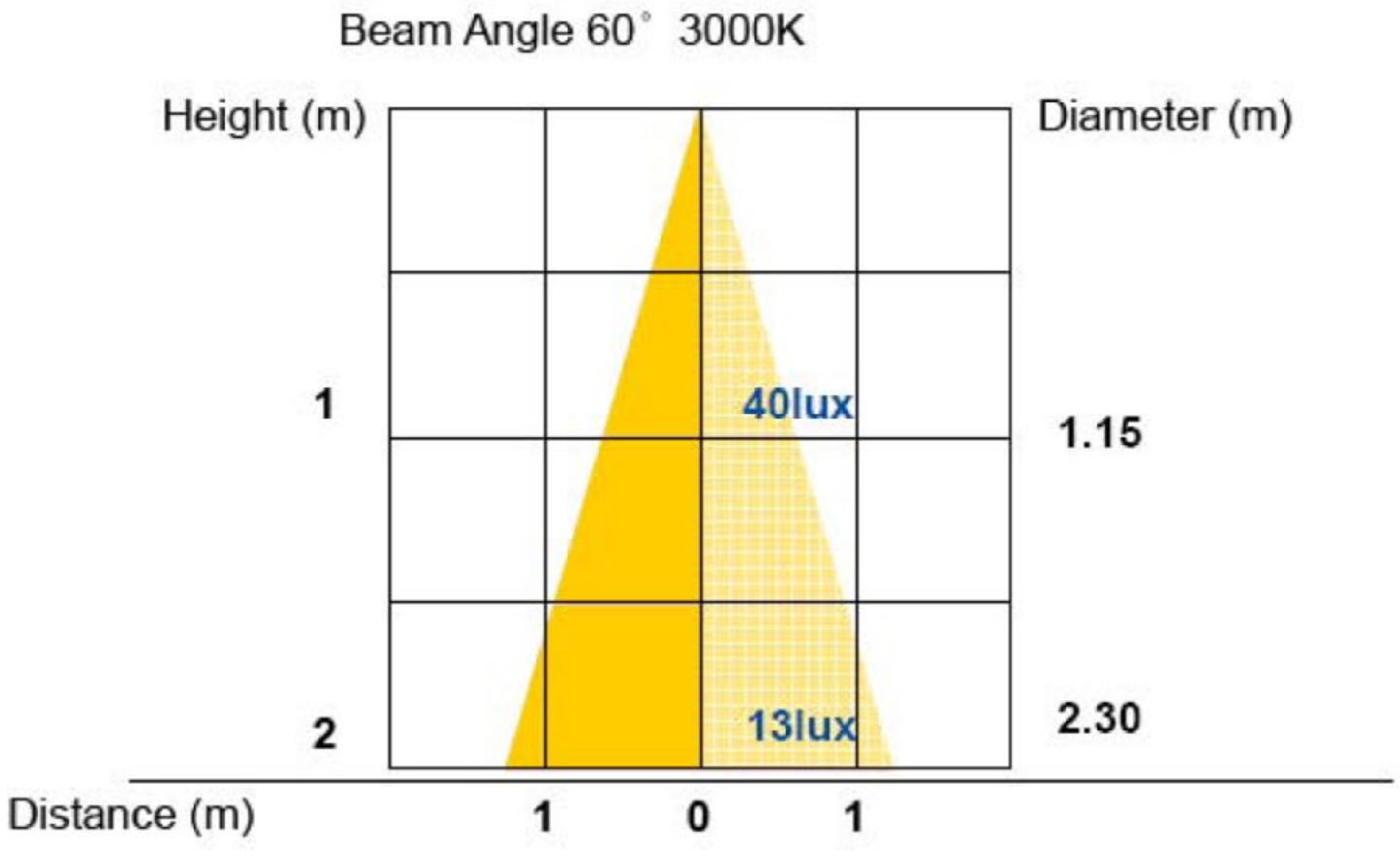
< Figure 7 PAR16 beam angle 38 degree of warm white color >



< Figure 8 PAR16 beam angle 68 degree of cool white color >



< Figure 9 PAR16 beam angle 60 degree of neutral white color >



< Figure 10 GU10 beam angle 60 degree of warm white color >

Light Pattern 10°/38°/60°

< Figure 11 Different beam angle from 1 meter picture >

ASSIST FORM for LED System

When Ts=65°C (heat sink temperature) and Tj=90°C

Package Dimensions

Dimension: 2" (L) x 2" (W) x 3 3/8" (H)

Weight: 120g(10 degree light pattern)

120g (38 degree light pattern)

< Figure 12 Package appearance >

Notes

1. Input voltage range: 90~240V AC.
2. Please do not use this product in high humidity.
3. Do not use this product with ambient temperature over 40C.
4. This product should only be used in a well ventilated condition. Do not install this product within an airtight lighting fixture.
5. Do not disassemble this product under any circumstances.
6. Indoor use only.

Personal Notations

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