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Woodscape

# ILLUMINATED BOLLARD

PRODUCT SPECIFICATION









- The Illuminated Bollard is made from Naturally Very Durable Hardwood. Suitable for lighting public spaces, walkways and planted areas, enhancing outdoor spaces at night whilst providing guidance for pedestrians and motorists.
- The lamp housing is die cast of copper and silica free aluminium alloy, specially blended, with high resistance to corrosion. This alloy makes the insert suitable for harsh environments.
- The lamp housing is available in a variety of colours: textured white, textured black, metallic grey. (Metallic grey as standard)
- Standard luminaries are available in 9 Watt, 18 Watt and LED. The luminaries dictate the minimum section sizes/diameters that are available to take the light units.
- Section sizes and greater if determined:
  - Square 150-300mm for a 9 watt & 200-300mm for a18 watt.
  - Round 175-300mm for a 9 watt & 200-300mm for a 18 watt.
- Woodscape can source or fit alternative light units supplied by others.
- Eight standard overall lengths (above ground) from 600 - 1800mm and greater if determined.
- Available in FSC Certified Hardwood.



FSC
www.fsc.org
FSC® C022521
The mark of responsible forestry

Woodscape products are manufactured from Naturally Very Durable Hardwoods, sourced from sustainable forests, as standard. As an FSC® certified supplier we can manufacture our products using FSC certified timber as required.

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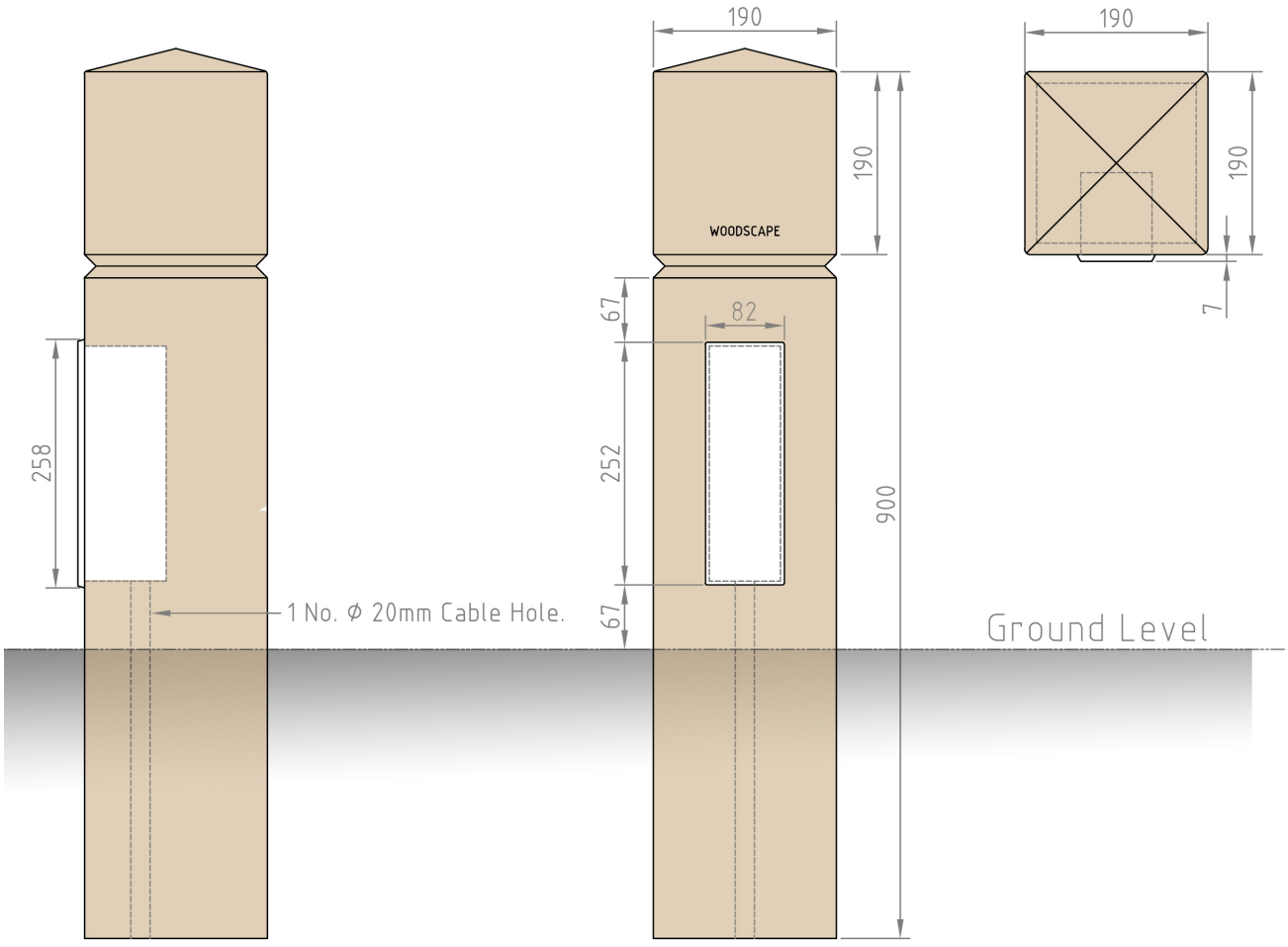
Minimum bollard section sizes for light units at the same height.

| Lamp | 1 Face | 2 Faces (op) | 2 Faces (adj) | 3 Faces | 4 Faces |
|---|---|---|---|---|---|
| 9 Watt Square | 150mm | 225mm | 300mm | 300mm | 300mm |
| 9 Watt Round | 175mm | 225mm | 300mm | 300mm | 300mm |
| 18 Watt Square | 175mm | 300mm | 300mm | 340mm | 340mm |
| 18 Watt Round | 200mm | | | | |

If multiple light units are required, we can locate the units at different heights on different sides.

Technical Data: Illuminated Timber Bollard SG 200 900 9Watt

Please contact Woodscape for standard or bespoke detailed customer drawings.



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## BOLLARD PROFILES




Bollard customisation include reflective bands, discs, logos, signs, engraving and wording all in a variety of colours: Red, Blue, Green, Yellow, Orange, White, Black.

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# ILLUMINATED BOLLARD

PRODUCT SPECIFICATION



- The housing is die cast of copper and silica free aluminium alloy, with high resistance to corrosion. This alloy makes the Insert suitable for harsh environments.
- Conforms to ASTM A413.2.
- Corrosion protected die formed steel housing, provided with mounting tabs for ease of installation.
- Self-resetting thermal protector is mounted to the halogen/incandescent housings.
- Semi-specular aluminium reflector.
- Precision die cast faceplates made of copper free aluminium with stainless steel flush mounted allen head screws.
- Concave shape prevents dirt accumulation.
- Internal rib pattern allows for maximum light distribution.
- UL and CUL listed for wet location and suitable for mounting within 4” off the ground. IP55 rated (dust protected, water jet proof).
- ADA compliant.
- Available colours: textured white, textured black, metallic grey. (Metallic Grey as standard).



Textured Black



Metallic Grey







Textured White

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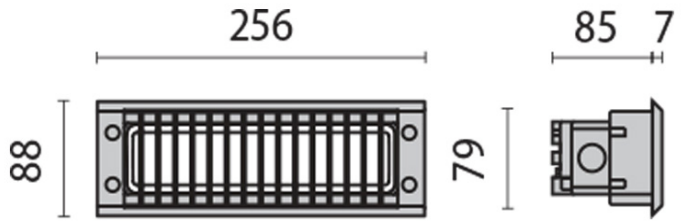
# ILLUMINATED BOLLARD: 9 WATT

PRODUCT SPECIFICATION

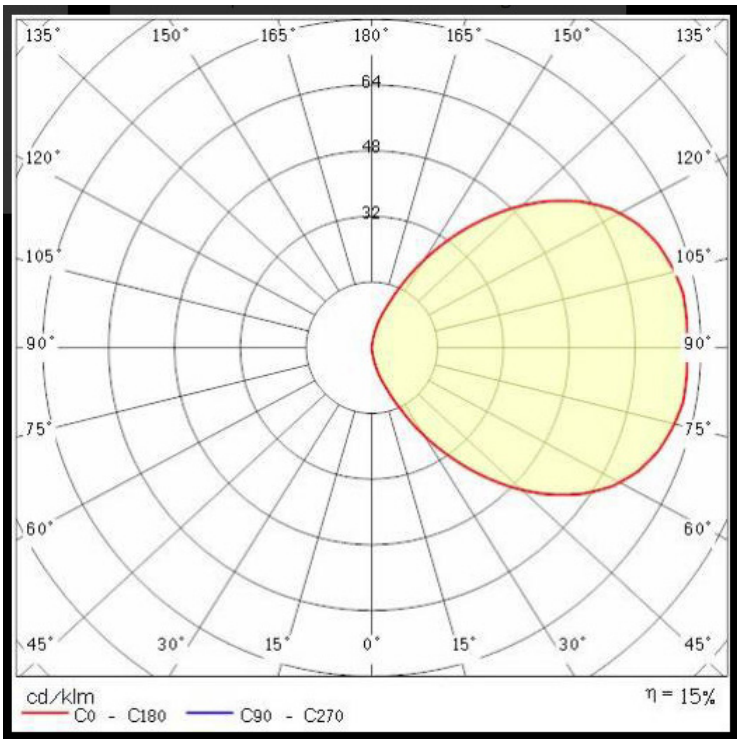


Technical Data: Typical DCLU 9 Watt




| Socket | Source | Type | Colour | Voltage | IP |
|---|---|---|---|---|---|
| 2G7 | 1-9W | CFL | Textured White | 277v | 55 |
| 2G7 | 1-9W | CFL | Textured White | 120v | 55 |
| 2G7 | 1-9W | CFL | Textured Black - White LED | 277v | 55 |
| 2G7 | 1-9W | CFL | Textured White - White LED | 120v | 55 |
| 2G7 | 1-9W | CFL | Metallic Grey - White LED | 277v | 55 |
| 2G7 | 1-9W | CFL | Textured Black - White LED | 120v | 55 |

Photometrics



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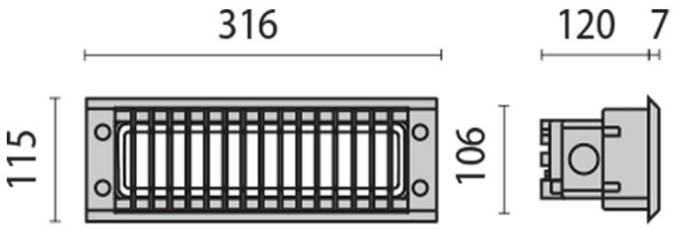
# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION

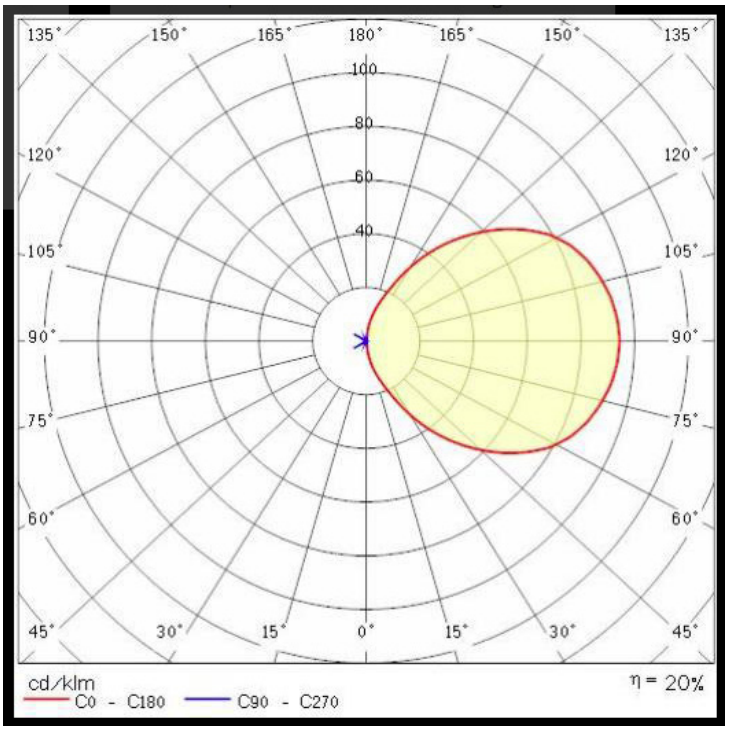


Technical Data: Typical DCLU 18 Watt




| Socket | Source | Type | Colour | Voltage | IP |
|---|---|---|---|---|---|
| 2G11 | 1-18w | CFL | Textured White | 120/277v | 55 |
| 2G11 | 1-18w | CFL | Metallic Grey | 120/277v | 55 |
| 2G11 | 1-18w | CFL | Textured Black | 120/277v | 55 |

Photometrics



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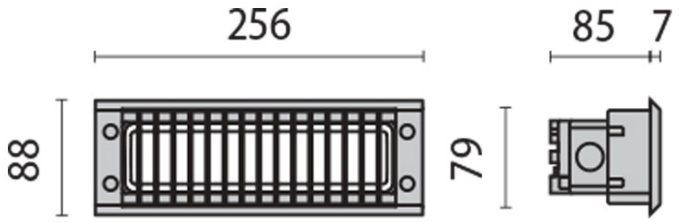
# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION

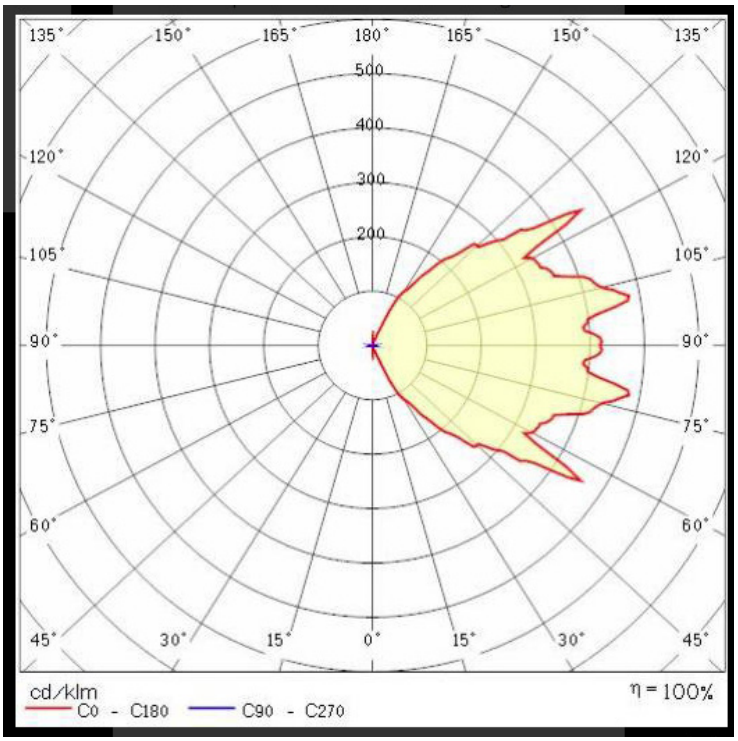


## Technical Data: Typical DCLU LED




| Socket | RLO | Source | Type | Colour | Kelvin | Lifetime | Voltage | IP |
|---|---|---|---|---|---|---|---|---|
| LED | 172 | 4 LED 8.4 w | LED | Textured White - White LED | 3000 | 60000 | 120/277v | 55 |
| LED | 172 | 4 LED 8.4 w | LED | Metallic Grey - White LED | 3000 | 60000 | 120/277v | 55 |
| LED | 172 | 4 LED 8.4 w | LED | Textured Black - White LED | 3000 | 60000 | 120/277v | 55 |
| LED | 231 | 4 LED 8.4 w | LED | Textured White - White LED | 6000 | 60000 | 120/277v | 55 |
| LED | 231 | 4 LED 8.4 w | LED | Metallic Grey - White LED | 6000 | 60000 | 120/277v | 55 |
| LED | 231 | 4 LED 8.4 w | LED | Textured Black - White LED | 6000 | 60000 | 120/277v | 55 |

## Photometrics



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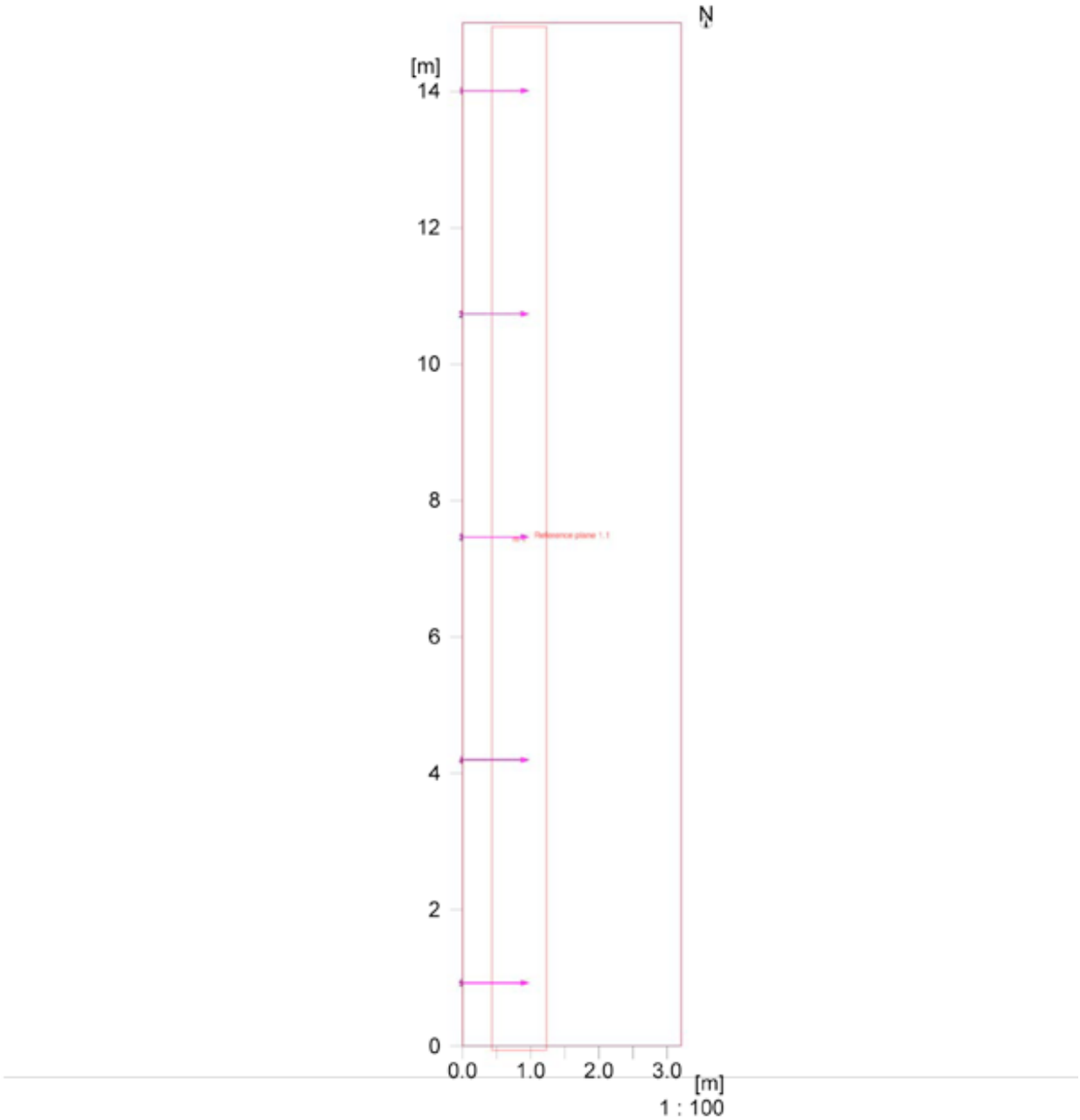
# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION



## EXTERIOR 1

DESCRIPTIO, EXTERIOR 1
FLOOR PLAN (3.2M X 15M)



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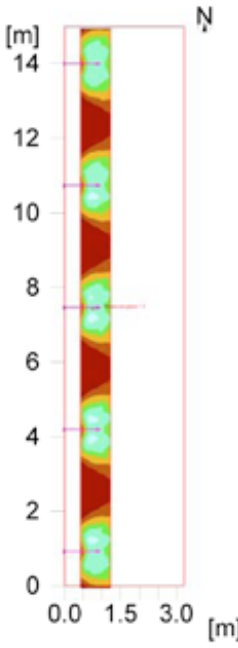
# ILLUMINATED BOLLARD: 18 WATT

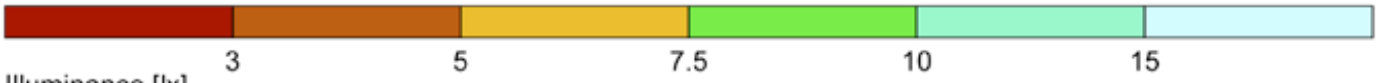
PRODUCT SPECIFICATION



## EXTERIOR 1

SUMMARY, EXTERIOR 1
RESULT OVERVIEW, MEASURING AREA (3.2M X 15M)




Illuminance [lx]

**General**

| | |
|---|---|
| Calculation algorithm used | Average indirect fraction |
| Height of evaluation surface | 0.00 m |
| photometric centre height. [m]: | 0.75 m |
| Maintenance factor | 0.80 |
| Total luminous flux of all lamps | 685 lm |
| Total power | 15 W |
| Total power per area (48.00 m²) | 0.31 W/m² |

**Illuminance**

| | | |
|---|---|---|
| Average illuminance | Eav | 6.8 lx |
| Minimum illuminance | Emin | 0.1 lx |
| Maximum illuminance | Emax | 18.2 lx |
| Uniformity Uo | Emin/Em | 1:62.8 (0.02) |
| Diversity Ud | Emin/Emax | 1:168 (0.01) |

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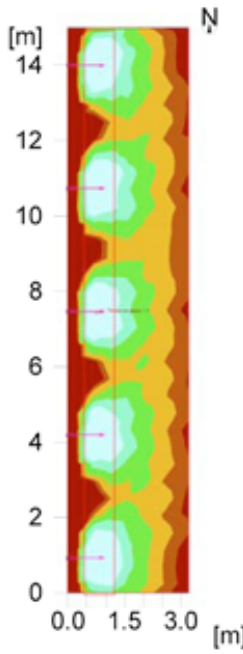
# ILLUMINATED BOLLARD: 18 WATT

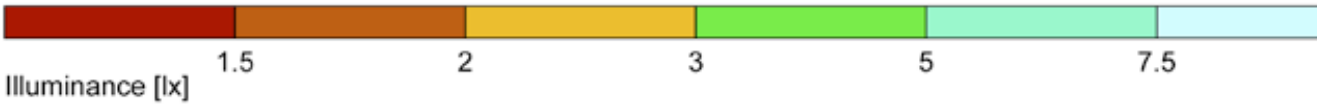
PRODUCT SPECIFICATION



## SUMMARY EXTERIOR 1

RESULT OVERVIEW, EVALUATION AREA (3.2M X 15M)




**General**

| | |
|---|---|
| Calculation algorithm used | Average indirect fraction |
| photometric centre height. | 0.75 m |
| Maintenance factor | 0.80 |

| **Evaluation area 1** | **Reference plane 1.1** |
|---|---|
| | Horizontal |
| Em | 3.75 lx |
| Emin | 0 lx |
| Emin/Eav (Uo) | --- |
| Emin/Emax (Ud) | --- |
| Position | 0.00 m |

**Type No.\Make**

# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION



## EXTERIOR 1
### CALCULATION RESULTS
### TABLE OF REFERENCE

| [m] | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0.2 | 6.1 | 7.1 | 3.9 | 2.8 | 2 | 1.4 |
| | 0.8 | 16.1 | 11 | 6.1 | 3.5 | 2.1 | 1.3 |
| 14 | 0.8 | 14 | 9.5 | 5.3 | 3.2 | 2 | 1.4 |
| | 1.2 | 9.5 | 7.6 | 5.6 | 3.5 | 2.4 | 1.8 |
| | 0.1 | 2.7 | 4.2 | 4.6 | 2.5 | 2 | 1.6 |
| | (0) | 0.6 | 2.1 | 2.9 | 2.5 | 2.4 | 1.7 |
| | (0) | 1.2 | 2.8 | 2.8 | 3.2 | 2 | 1.6 |
| 12 | 0.1 | 5.4 | 5.9 | 4.1 | 2.8 | 2.4 | 1.8 |
| | 0.9 | 14.8 | 10.8 | 6.2 | 3.8 | 2.5 | 1.7 |
| | 0.8 | 12.9 | 9 | 5.2 | 3.3 | 2.1 | 1.5 |
| | 1.4 | 11.6 | 8.5 | 6.1 | 3.7 | 2.5 | 1.8 |
| 10 | 0.1 | 4 | 4.6 | 4.7 | 2.6 | 2.2 | 1.8 |
| | (0) | 0.8 | 2.3 | 2.8 | 2.7 | 2.2 | 1.7 |
| | (0) | 0.9 | 2.3 | 2.8 | 2.8 | 2.2 | 1.7 |
| | 0.1 | 4.2 | 4.7 | 4.6 | 2.7 | 2.2 | 1.8 |
| 8 | 1.4 | 12.2 | 8.7 | 6.1 | 3.7 | 2.5 | 1.8 |
| | 0.8 | 12.9 | 9 | 5.2 | 3.3 | 2.1 | 1.5 |
| | 0.9 | 14.7 | 10.5 | 6.1 | 3.8 | 2.5 | 1.8 |
| | 0.1 | 5.3 | 5.7 | 4.1 | 2.8 | 2.4 | 1.8 |
| 6 | (0) | 1.2 | 2.7 | 2.8 | 3.2 | 2 | 1.6 |
| | (0) | 0.6 | 2.1 | 2.9 | 2.5 | 2.4 | 1.8 |
| | 0.1 | 2.9 | 4.2 | 4.8 | 2.6 | 2.1 | 1.7 |
| | 1.3 | 9.8 | 7.7 | 5.8 | 3.6 | 2.5 | 1.9 |
| | 0.8 | 13.9 | 9.4 | 5.3 | 3.3 | 2.1 | 1.5 |
| 4 | 0.8 | 15.6 | 10.9 | 6.3 | 3.8 | 2.3 | 1.6 |
| | 0.2 | 5.9 | 6.9 | 4.2 | 3.1 | 2.4 | 1.8 |
| | (0) | 1.5 | 3.4 | 3 | 3.3 | 2 | 1.5 |
| | (0) | 0.5 | 2 | 2.9 | 2.5 | 2.5 | 1.7 |
| 2 | 0.1 | 2.1 | 4 | 3.6 | 2.7 | 1.9 | 1.5 |
| | 0.7 | 8.4 | 8 | 4.9 | 3.5 | 2.4 | 1.8 |
| | 0.8 | 14.7 | 10.2 | 5.5 | 3.3 | 2.1 | 1.4 |
| | 0.9 | [17.8] | 11.2 | 5.7 | 3.2 | 2 | 1.3 |
| | 0.3 | 7.5 | 8.3 | 4.2 | 3.1 | 2 | 1.4 |
| | 0.25 | 0.75 | 1.25 | 1.75 | 2.25 | 2.75 | [m] |

Illuminance [lx]

| | | |
|---|---|---|
| Height of the reference plane | | : 0.00 m |
| Average illuminance | Eav | : 3.8 lx |
| Minimum illuminance | Emin | : 0 lx |
| Maximum illuminance | Emax | : 17.8 lx |
| Uniformity Uo | Emin/Eav | : --- |
| Diversity Ud | Emin/Emax | : --- |

# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

TABLE, MEASURING AREA

| [m] | | | | | |
|---|---|---|---|---|---|
| | 3.7 | 5.3 | 5.6 | 5.7 | 5.8 |
| | 6.5 | 8 | 8.2 | 8.6 | 8 |
| | 8.4 | 10.9 | 13.5 | 9.8 | 8.3 |
| | 10.2 | 14.9 | 14.9 | 13.9 | 10.8 |
| | 7.3 | 13.5 | 13.4 | 11.8 | 9.7 |
| | 4.8 | 12.6 | 12.6 | 11 | 9 |
| 14 | 7.2 | 13.4 | 13.4 | 11.7 | 9.6 |
| | 10.1 | 15 | 15.1 | 13.9 | 10.8 |
| | 8.4 | 11.1 | 13.7 | 9.9 | 8.4 |
| | 6.6 | 8.1 | 8.3 | 8.8 | 8 |
| | 3.8 | 5.4 | 5.7 | 5.8 | 6.1 |
| | 1.6 | 2.9 | 3.9 | 4.6 | 4.2 |
| | 0.6 | 1.6 | 2.2 | 2.9 | 3.7 |
| | (0.1) | 0.9 | 1.5 | 2 | 2.6 |
| | (0.1) | 0.4 | 1.4 | 1.9 | 2 |
| | (0.1) | 0.4 | 1.4 | 1.9 | 2 |
| | (0.1) | 0.8 | 1.5 | 2 | 2.4 |
| 12 | 0.5 | 1.5 | 2 | 2.6 | 3.5 |
| | 1.3 | 2.5 | 3.4 | 4.3 | 4.2 |
| | 3.2 | 5 | 5.3 | 5.3 | 5.6 |
| | 5.7 | 7 | 7.7 | 8.3 | 8.2 |
| | 8.1 | 10 | 12.6 | 10 | 7.9 |
| | 10.2 | 14.3 | 14 | 13.3 | 10.7 |
| | 7.9 | 14.4 | 13.9 | 12.2 | 10.1 |
| | 4.9 | 12.7 | 12.6 | 11 | 9 |
| | 6.4 | 13.6 | 13.7 | 11.5 | 9.4 |
| | 9.8 | 17.5 | 16.4 | 13.8 | 11.3 |
| | 9 | 12.4 | 13.9 | 10.1 | 9 |
| | 7.1 | 8.7 | 8.9 | 9.7 | 7.8 |
| 10 | 4.2 | 5.8 | 6 | 6.2 | 6.5 |
| | 1.9 | 3.3 | 4.3 | 4.8 | 4.3 |
| | 0.7 | 1.7 | 2.4 | 3.3 | 3.9 |
| | 0.2 | 1 | 1.6 | 2.1 | 2.7 |
| | (0.1) | 0.5 | 1.4 | 1.9 | 2.1 |
| | (0.1) | 0.3 | 1.4 | 1.9 | 2 |
| | (0.1) | 0.7 | 1.5 | 2 | 2.3 |
| | 0.4 | 1.4 | 1.8 | 2.4 | 3.3 |
| | 1.1 | 2.2 | 3.1 | 4 | 4.1 |

| | | |
|---|---|---|
| Height of the reference plane | | : 0.00 m |
| Average illuminance | Eav | : 6.8 lx |
| Minimum illuminance | Emin | : 0.1 lx |
| Maximum illuminance | Emax | : 18.2 lx |
| Uniformity Uo | Emin/Eav | : 1 : 62.76 (0.02) |
| Diversity Ud | Emin/Emax | : 1 : 168.01 (0.01) |

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# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

TABLE, MEASURING AREA

| | | | | | |
|---|---|---|---|---|---|
| | 2.8 | 4.5 | 5 | 5.1 | 5.2 |
| | 5.3 | 6.4 | 7.1 | 7.9 | 7.8 |
| | 7.9 | 9.3 | 11.2 | 10.4 | 7.7 |
| 8 | 10.4 | 15 | 12.8 | 11.7 | 10.7 |
| | 8.7 | 15.9 | 14.8 | 12.7 | 10.6 |
| | 5.2 | 13 | 12.8 | 10.7 | 8.9 |
| | 5.7 | 13.4 | 13.4 | 11.2 | 9.2 |
| | 9.7 | **[18.2]** | 16.7 | 13.7 | 11.4 |
| | 10.1 | 14.2 | 12.7 | 10.5 | 9.9 |
| | 7.6 | 9.1 | 9.5 | 10.6 | 7.6 |
| | 4.7 | 5.8 | 6.4 | 7.1 | 6.8 |
| | 2.3 | 3.9 | 4.6 | 4.8 | 4.6 |
| | 0.9 | 1.9 | 2.6 | 3.6 | 4 |
| | 0.2 | 1.2 | 1.7 | 2.2 | 2.9 |
| | **(0.1)** | 0.6 | 1.5 | 2 | 2.1 |
| 6 | **(0.1)** | 0.3 | 1.4 | 1.9 | 2 |
| | **(0.1)** | 0.6 | 1.5 | 2 | 2.2 |
| | 0.3 | 1.2 | 1.7 | 2.3 | 3 |
| | 0.9 | 2 | 2.8 | 3.7 | 4 |
| | 2.4 | 4.1 | 4.7 | 4.9 | 4.7 |
| | 4.9 | 6 | 6.6 | 7.3 | 7.1 |
| | 7.8 | 9.3 | 9.8 | 10.8 | 7.6 |
| | 10.3 | 14.6 | 12.6 | 10.8 | 10.2 |
| | 9.5 | **[18.2]** | 16.6 | 13.6 | 11.3 |
| | 5.6 | 13.3 | 13.1 | 10.9 | 9.1 |
| | 5.3 | 13.2 | 13 | 10.8 | 9 |
| 4 | 9.4 | 17.9 | 16.2 | 13.4 | 11.2 |
| | 10.4 | 14.9 | 12.6 | 11.2 | 10.5 |
| | 8 | 9.5 | 10.2 | 11 | 7.6 |
| | 5.1 | 6.2 | 6.8 | 7.6 | 7.5 |
| | 2.6 | 4.3 | 4.9 | 4.9 | 4.9 |
| | 1 | 2.1 | 2.9 | 3.9 | 4.1 |
| | 0.3 | 1.3 | 1.8 | 2.3 | 3.1 |
| | **(0.1)** | 0.7 | 1.5 | 2 | 2.2 |
| | **(0.1)** | 0.3 | 1.4 | 1.9 | 2 |
| | **(0.1)** | 0.5 | 1.4 | 1.9 | 2.1 |
| | 0.2 | 1.1 | 1.6 | 2.1 | 2.8 |
| | 0.8 | 1.8 | 2.5 | 3.4 | 3.9 |
| 2 | 2.1 | 3.6 | 4.4 | 4.7 | 4.4 |

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# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

### TABLE, MEASURING AREA

| | | | | |
|---|---|---|---|---|
| 4.5 | 5.6 | 6.2 | 6.8 | 6.6 |
| 7.4 | 8.9 | 9.2 | 10.2 | 7.7 |
| 9.9 | 13.7 | 12.9 | 10.3 | 9.5 |
| 9.7 | 18 | 16.7 | 13.8 | 11.4 |
| 6 | 13.5 | 13.6 | 11.4 | 9.3 |
| 5 | 12.9 | 12.7 | 10.7 | 8.9 |
| 8.3 | 15.1 | 14.2 | 12.4 | 10.3 |
| 10.2 | 14.2 | 13.5 | 12.8 | 10.7 |
| 8 | 9.6 | 11.9 | 10.2 | 7.8 |
| 5.5 | 6.7 | 7.4 | 8.1 | 8 |
| 3 | 4.7 | 5.2 | 5.1 | 5.2 |

0.1 0.2 0.3 0.4 0.5 0.6 0.7 [m]

Illuminance [lx]

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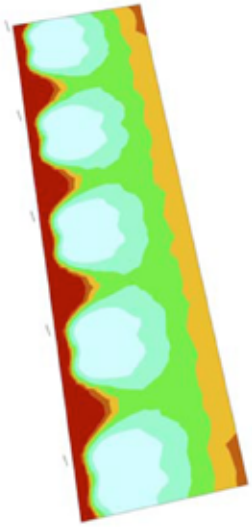
# ILLUMINATED BOLLARD: 18 WATT

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

3D DIAGRAM SHOWING STRETCH OF LUMINANCE





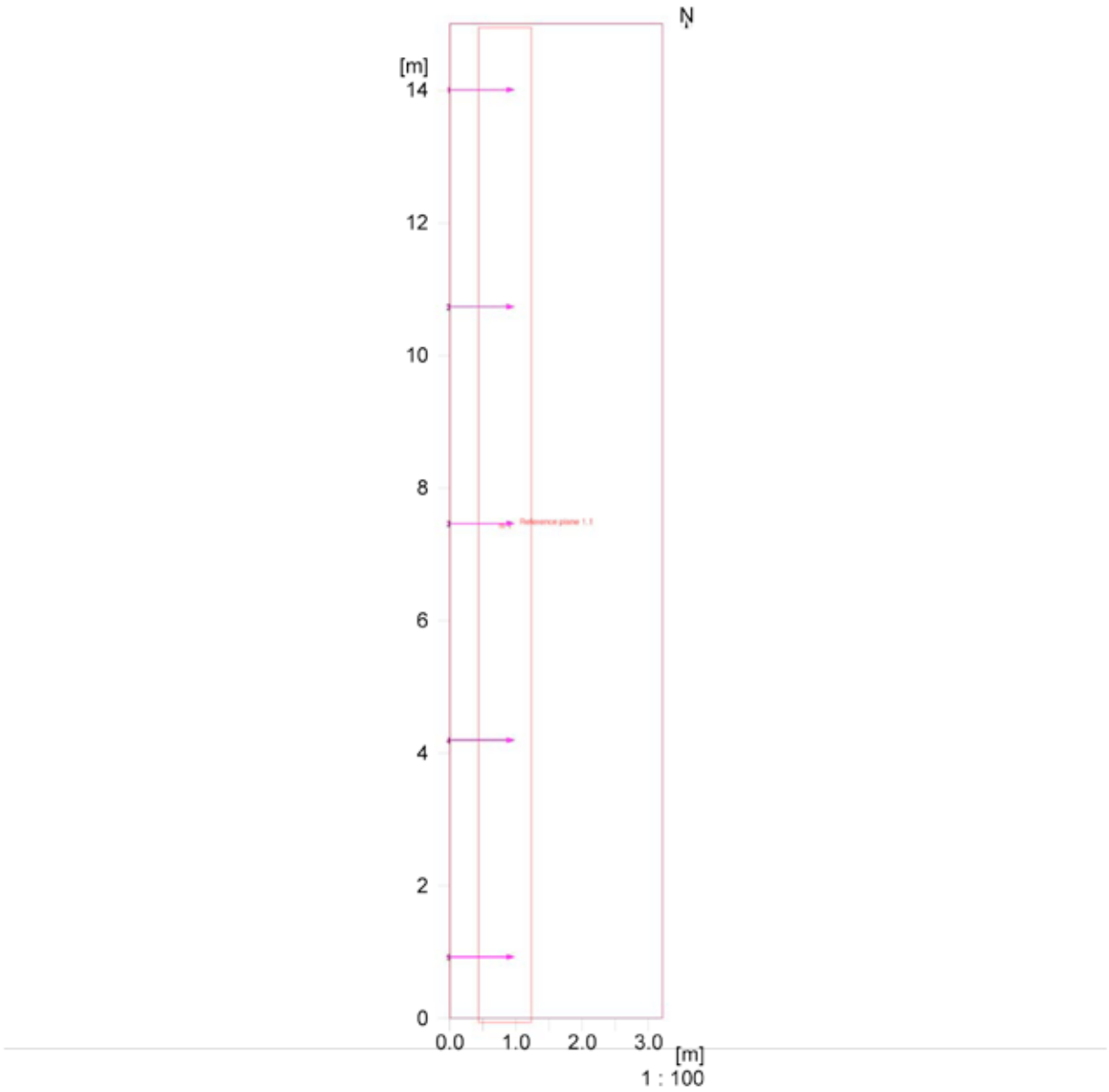
# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## EXTERIOR 1

DSECRIPTION, EXTERIOR 1
FLOOR PLAN



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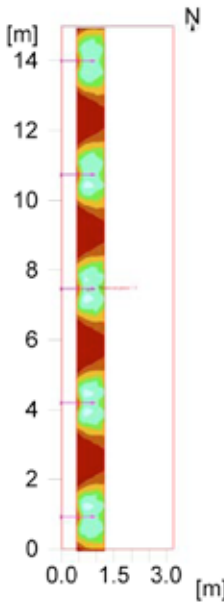
# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## EXTERIOR 1

SUMMARY, EXTERIOR 1
RESULT OVERVIEW, DIAGRAM OF ILLUMINANCE COVERAGE (METRES)







Illuminance [lx]

**General**

| | |
|---|---|
| Calculation algorithm used | Average indirect fraction |
| Height of evaluation surface | 0.00 m |
| photometric centre height. [m]: | 0.75 m |
| Maintenance factor | 0.80 |
| Total luminous flux of all lamps | 685 lm |
| Total power | 15 W |
| Total power per area (48.00 m²) | 0.31 W/m² |

**Illuminance**

| | | |
|---|---|---|
| Average illuminance | Eav | 6.8 lx |
| Minimum illuminance | Emin | 0.1 lx |
| Maximum illuminance | Emax | 18.2 lx |
| Uniformity Uo | Emin/Em | 1:62.8 (0.02) |
| Diversity Ud | Emin/Emax | 1:168 (0.01) |

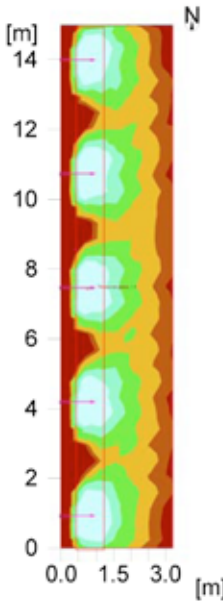
# ILLUMINATED BOLLARD: LED

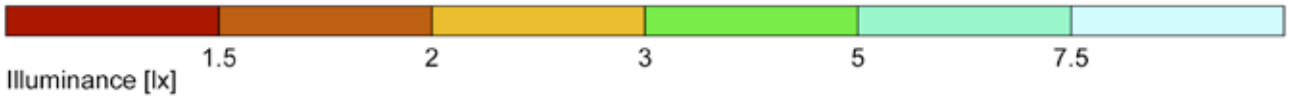
PRODUCT SPECIFICATION



## SUMMARY EXTERIOR 1

RESULT OVERVIEW, DIAGRAM OF ILLUMINANCE COVERAGE (METRES)
EVALUATION AREA - WIDTH OF DRIVEWAY & PEDISTRIAN PATH (3.2M X 15M)




**General**

| | |
|---|---|
| Calculation algorithm used | Average indirect fraction |
| photometric centre height. | 0.75 m |
| Maintenance factor | 0.80 |

| **Evaluation area 1** | **Reference plane 1.1** |
|---|---|
| | Horizontal |
| Em | 3.75 lx |
| Emin | 0 lx |
| Emin/Eav (Uo) | --- |
| Emin/Emax (Ud) | --- |
| Position | 0.00 m |

# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## EXTERIOR 1

### CALCULATION RESULTS, EXTERIOR 1
### TABLE OF REFERENCE

| [m] | 0.25 | 0.75 | 1.25 | 1.75 | 2.25 | 2.75 |
|---|---|---|---|---|---|---|
| | 0.2 | 6.1 | 7.1 | 3.9 | 2.8 | 2 | 1.4 |
| | 0.8 | 16.1 | 11 | 6.1 | 3.5 | 2.1 | 1.3 |
| 14 | 0.8 | 14 | 9.5 | 5.3 | 3.2 | 2 | 1.4 |
| | 1.2 | 9.5 | 7.6 | 5.6 | 3.5 | 2.4 | 1.8 |
| | 0.1 | 2.7 | 4.2 | 4.6 | 2.5 | 2 | 1.6 |
| | (0) | 0.6 | 2.1 | 2.9 | 2.5 | 2.4 | 1.7 |
| 12 | (0) | 1.2 | 2.8 | 2.8 | 3.2 | 2 | 1.6 |
| | 0.1 | 5.4 | 5.9 | 4.1 | 2.8 | 2.4 | 1.8 |
| | 0.9 | 14.8 | 10.8 | 6.2 | 3.8 | 2.5 | 1.7 |
| | 0.8 | 12.9 | 9 | 5.2 | 3.3 | 2.1 | 1.5 |
| | 1.4 | 11.6 | 8.5 | 6.1 | 3.7 | 2.5 | 1.8 |
| 10 | 0.1 | 4 | 4.6 | 4.7 | 2.6 | 2.2 | 1.8 |
| | (0) | 0.8 | 2.3 | 2.8 | 2.7 | 2.2 | 1.7 |
| | (0) | 0.9 | 2.3 | 2.8 | 2.8 | 2.2 | 1.7 |
| | 0.1 | 4.2 | 4.7 | 4.6 | 2.7 | 2.2 | 1.8 |
| 8 | 1.4 | 12.2 | 8.7 | 6.1 | 3.7 | 2.5 | 1.8 |
| | 0.8 | 12.9 | 9 | 5.2 | 3.3 | 2.1 | 1.5 |
| | 0.9 | 14.7 | 10.5 | 6.1 | 3.8 | 2.5 | 1.8 |
| | 0.1 | 5.3 | 5.7 | 4.1 | 2.8 | 2.4 | 1.8 |
| 6 | (0) | 1.2 | 2.7 | 2.8 | 3.2 | 2 | 1.6 |
| | (0) | 0.6 | 2.1 | 2.9 | 2.5 | 2.4 | 1.8 |
| | 0.1 | 2.9 | 4.2 | 4.8 | 2.6 | 2.1 | 1.7 |
| | 1.3 | 9.8 | 7.7 | 5.8 | 3.6 | 2.5 | 1.9 |
| | 0.8 | 13.9 | 9.4 | 5.3 | 3.3 | 2.1 | 1.5 |
| 4 | 0.8 | 15.6 | 10.9 | 6.3 | 3.8 | 2.3 | 1.6 |
| | 0.2 | 5.9 | 6.9 | 4.2 | 3.1 | 2.4 | 1.8 |
| | (0) | 1.5 | 3.4 | 3 | 3.3 | 2 | 1.5 |
| | (0) | 0.5 | 2 | 2.9 | 2.5 | 2.5 | 1.7 |
| 2 | 0.1 | 2.1 | 4 | 3.6 | 2.7 | 1.9 | 1.5 |
| | 0.7 | 8.4 | 8 | 4.9 | 3.5 | 2.4 | 1.8 |
| | 0.8 | 14.7 | 10.2 | 5.5 | 3.3 | 2.1 | 1.4 |
| | 0.9 | [17.8] | 11.2 | 5.7 | 3.2 | 2 | 1.3 |
| | 0.3 | 7.5 | 8.3 | 4.2 | 3.1 | 2 | 1.4 |

[m]

Illuminance [lx]

| | | |
|---|---|---|
| Height of the reference plane | | : 0.00 m |
| Average illuminance | Eav | : 3.8 lx |
| Minimum illuminance | Emin | : 0 lx |
| Maximum illuminance | Emax | : 17.8 lx |
| Uniformity Uo | Emin/Eav | : --- |
| Diversity Ud | Emin/Emax | : --- |

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# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

TABLE, MEASURING AREA

| | | | | | |
|---|---|---|---|---|---|
| | 2.8 | 4.5 | 5 | 5.1 | 5.2 |
| | 5.3 | 6.4 | 7.1 | 7.9 | 7.8 |
| | 7.9 | 9.3 | 11.2 | 10.4 | 7.7 |
| 8 | 10.4 | 15 | 12.8 | 11.7 | 10.7 |
| | 8.7 | 15.9 | 14.8 | 12.7 | 10.6 |
| | 5.2 | 13 | 12.8 | 10.7 | 8.9 |
| | 5.7 | 13.4 | 13.4 | 11.2 | 9.2 |
| | 9.7 | **[18.2]** | 16.7 | 13.7 | 11.4 |
| | 10.1 | 14.2 | 12.7 | 10.5 | 9.9 |
| | 7.6 | 9.1 | 9.5 | 10.6 | 7.6 |
| | 4.7 | 5.8 | 6.4 | 7.1 | 6.8 |
| | 2.3 | 3.9 | 4.6 | 4.8 | 4.6 |
| | 0.9 | 1.9 | 2.6 | 3.6 | 4 |
| | 0.2 | 1.2 | 1.7 | 2.2 | 2.9 |
| | **(0.1)** | 0.6 | 1.5 | 2 | 2.1 |
| 6 | **(0.1)** | 0.3 | 1.4 | 1.9 | 2 |
| | **(0.1)** | 0.6 | 1.5 | 2 | 2.2 |
| | 0.3 | 1.2 | 1.7 | 2.3 | 3 |
| | 0.9 | 2 | 2.8 | 3.7 | 4 |
| | 2.4 | 4.1 | 4.7 | 4.9 | 4.7 |
| | 4.9 | 6 | 6.6 | 7.3 | 7.1 |
| | 7.8 | 9.3 | 9.8 | 10.8 | 7.6 |
| | 10.3 | 14.6 | 12.6 | 10.8 | 10.2 |
| | 9.5 | **[18.2]** | 16.6 | 13.6 | 11.3 |
| | 5.6 | 13.3 | 13.1 | 10.9 | 9.1 |
| | 5.3 | 13.2 | 13 | 10.8 | 9 |
| 4 | 9.4 | 17.9 | 16.2 | 13.4 | 11.2 |
| | 10.4 | 14.9 | 12.6 | 11.2 | 10.5 |
| | 8 | 9.5 | 10.2 | 11 | 7.6 |
| | 5.1 | 6.2 | 6.8 | 7.6 | 7.5 |
| | 2.6 | 4.3 | 4.9 | 4.9 | 4.9 |
| | 1 | 2.1 | 2.9 | 3.9 | 4.1 |
| | 0.3 | 1.3 | 1.8 | 2.3 | 3.1 |
| | **(0.1)** | 0.7 | 1.5 | 2 | 2.2 |
| | **(0.1)** | 0.3 | 1.4 | 1.9 | 2 |
| | **(0.1)** | 0.5 | 1.4 | 1.9 | 2.1 |
| | 0.2 | 1.1 | 1.6 | 2.1 | 2.8 |

# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

TABLE, MEASURING AREA

| | | | | | |
|---|---|---|---|---|---|
| | 2.8 | 4.5 | 5 | 5.1 | 5.2 |
| | 5.3 | 6.4 | 7.1 | 7.9 | 7.8 |
| | 7.9 | 9.3 | 11.2 | 10.4 | 7.7 |
| 8 | 10.4 | 15 | 12.8 | 11.7 | 10.7 |
| | 8.7 | 15.9 | 14.8 | 12.7 | 10.6 |
| | 5.2 | 13 | 12.8 | 10.7 | 8.9 |
| | 5.7 | 13.4 | 13.4 | 11.2 | 9.2 |
| | 9.7 | [18.2] | 16.7 | 13.7 | 11.4 |
| | 10.1 | 14.2 | 12.7 | 10.5 | 9.9 |
| | 7.6 | 9.1 | 9.5 | 10.6 | 7.6 |
| | 4.7 | 5.8 | 6.4 | 7.1 | 6.8 |
| | 2.3 | 3.9 | 4.6 | 4.8 | 4.6 |
| | 0.9 | 1.9 | 2.6 | 3.6 | 4 |
| | 0.2 | 1.2 | 1.7 | 2.2 | 2.9 |
| | (0.1) | 0.6 | 1.5 | 2 | 2.1 |
| 6 | (0.1) | 0.3 | 1.4 | 1.9 | 2 |
| | (0.1) | 0.6 | 1.5 | 2 | 2.2 |
| | 0.3 | 1.2 | 1.7 | 2.3 | 3 |
| | 0.9 | 2 | 2.8 | 3.7 | 4 |
| | 2.4 | 4.1 | 4.7 | 4.9 | 4.7 |
| | 4.9 | 6 | 6.6 | 7.3 | 7.1 |
| | 7.8 | 9.3 | 9.8 | 10.8 | 7.6 |
| | 10.3 | 14.6 | 12.6 | 10.8 | 10.2 |
| | 9.5 | [18.2] | 16.6 | 13.6 | 11.3 |
| | 5.6 | 13.3 | 13.1 | 10.9 | 9.1 |
| | 5.3 | 13.2 | 13 | 10.8 | 9 |
| 4 | 9.4 | 17.9 | 16.2 | 13.4 | 11.2 |
| | 10.4 | 14.9 | 12.6 | 11.2 | 10.5 |
| | 8 | 9.5 | 10.2 | 11 | 7.6 |
| | 5.1 | 6.2 | 6.8 | 7.6 | 7.5 |
| | 2.6 | 4.3 | 4.9 | 4.9 | 4.9 |
| | 1 | 2.1 | 2.9 | 3.9 | 4.1 |
| | 0.3 | 1.3 | 1.8 | 2.3 | 3.1 |
| | (0.1) | 0.7 | 1.5 | 2 | 2.2 |
| | (0.1) | 0.3 | 1.4 | 1.9 | 2 |
| | (0.1) | 0.5 | 1.4 | 1.9 | 2.1 |
| | 0.2 | 1.1 | 1.6 | 2.1 | 2.8 |
| | 0.8 | 1.8 | 2.5 | 3.4 | 3.9 |
| 2 | 2.1 | 3.6 | 4.4 | 4.7 | 4.4 |

# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

### TABLE, MEASURING AREA

| | | | | |
|---|---|---|---|---|
| 4.5 | 5.6 | 6.2 | 6.8 | 6.6 |
| 7.4 | 8.9 | 9.2 | 10.2 | 7.7 |
| 9.9 | 13.7 | 12.9 | 10.3 | 9.5 |
| 9.7 | 18 | 16.7 | 13.8 | 11.4 |
| 6 | 13.5 | 13.6 | 11.4 | 9.3 |
| 5 | 12.9 | 12.7 | 10.7 | 8.9 |
| 8.3 | 15.1 | 14.2 | 12.4 | 10.3 |
| 10.2 | 14.2 | 13.5 | 12.8 | 10.7 |
| 8 | 9.6 | 11.9 | 10.2 | 7.8 |
| 5.5 | 6.7 | 7.4 | 8.1 | 8 |
| 3 | 4.7 | 5.2 | 5.1 | 5.2 |

0.1 0.2 0.3 0.4 0.5 0.6 0.7 [m]

Illuminance [lx]

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# ILLUMINATED BOLLARD: LED

PRODUCT SPECIFICATION



## CALCULATION RESULTS, EXTERIOR 1

3D DIAGRAM SHOWING STRETCH OF LUMINANCE

