

Symmetry Park, Merseyside

External Lighting Planning Statement

26th February 2024

Ref: 02514-HAN-PL-03-RP-E-006301-External-Lighting-Planning-Statement Rev 2

1.0 Introduction

This Lighting Design report has been commissioned and prepared in support of a planning application for the installation of exterior lighting

The Lighting strategy will aim to deliver the following objectives:

- Create a safe, secure and accessible environment for all users of the proposed facility
- Minimise the impact on the existing environment through the use of good design principles
- Maintain conditions favourable to the local wildlife by building an understanding of their needs and incorporating the necessary measures into the design
- Adopt a holistically sustainable approach to selection and specification of the lighting
- Adopt a controls approach that will allow lighting levels to be modified to suit specific use and unused zones to be switched off in the event that they are not being fully utilised

1.1 Planning Conditions

Outline Planning Permission

Planning Application No: 20/00494/HYB

Condition 61. Prior to the occupation of each phase of development approved as part of any subsequent reserved matters application details of all external lighting within the curtilage of each building shall be submitted to and approved in writing by the Local Planning Authority. The agreed details shall be implemented in full before each building is first occupied and maintained thereafter.

REASON: To ensure the lightning proposed is acceptable and is not detrimental to the amenity of nearby residential properties.

2.0 Design Standards and Legislation

The lighting design will comply with the following key standards where applicable:

- Building Regulations
- CIBSE lighting guides and recommendations
- ILE lighting guides and recommendations
- British Standards guides and recommendations
- CIE Standards guides and recommendations
- BREEAM recommendations for lighting control and light pollution minimisation
- Lighting design limits set by the ILE/CIE for the environmental lighting zones E1 - E4 where appropriate
- Bats and Lighting in the UK

3.0 Lighting Scheme

The design of the development will seek to minimise the impact on climate change and incorporate measures to enable it to cope with anticipated changes in temperature and weather as outlined below.

Key Impact Appraisal	
Security and Safety	The floodlighting will provide secure and safe use of the facility for staff, visitors and vehicles
Adjacent Development	Tight illumination control and compliance with 'Dark Skies' recommendations will minimize any impact on the adjacent development and existing amenities These measures will ensure that the increase in levels of illumination at the site boundaries is kept to a minimum
Wildlife and Ecology	The design of the flood lighting will take full consideration of the advice provided by the Ecology Consultants and adopt the methods of mitigation listed in Section 4.0
Carbon Emissions	Luminaires, controls and lamps will be selected to provide energy efficient solutions to minimise carbon emissions

4.0 Ecological Considerations

Lighting should be designed to minimise disturbance to wildlife by avoiding potentially suitable foraging habitats and movement corridors such as tree lines, hedgerows and areas of open water where feasible

A combination of the following measures should also be used:

- Avoid unnecessary lighting especially around the boundary of the development
- Use low level and/or hooded lamps, baffles and shields where necessary to ensure spill is minimised
- Use low intensity lighting where possible
- Use movement sensors over the night time period to ensure lighting is only on when required

The following measures will be taken to ensure mitigation of lighting impacts on wildlife:

- Lighting will be positioned to avoid sensitive areas
- LED lamps will be utilized throughout
- Lighting will only be directed where it is required and baffles or louvers will be added to minimise light spill
- Lighting columns will be kept to minimum height
- All lighting will be computer modelled to predict light spill and patterns
- Asymmetric beams will be used on all floodlights
- Controlled zoning of illuminated areas will minimise light usage

5.0 Lamps, Maintenance and Control

The luminaires will be selected using LED Lamp sources throughout to achieve the optimum balance between efficiency, life expectancy, aesthetics and control requirements for each lighting situation

Lighting control strategies will make use of time and zone setting control systems to minimise the energy use and improve lamp life whilst ensuring a safe and secure environment

6.0 Lighting Designs

6.1 Development External Lighting Detailed Design Proposals

External lighting designs have been prepared for the Development Plots Unit 03, Unit 04 and the Phase 3 Site Access Spine Road

The proposed luminaire types, locations, mounting heights and controls along with the computer-generated lighting design calculation results for the minimum average illumination levels, uniformity and light spillage onto the adjoining areas are detailed on the following Datasheets and External Lighting Design Drawings

6.1.1 Luminaire Datasheets

i)	Type AW	–	DSX2.2.LA364.FW
ii)	Type B1	–	DSX2.2.LA304.FW
iii)	Type B1/BLS	–	DSX2.2.LA304.FW.BLS
iv)	Type CW	–	DSX0.4.LA164.AY
v)	Type C1	–	DSX0.4.LA164.AY
vi)	Type C1/BLS	–	DSX0.4.LA164.AY.BLS
vii)	Type DW	–	DSX0.1.LA104.AY
viii)	Type E1	–	DSX0.4.LA224.AY
ix)	Type F1	–	DSX0.4.LA164.FW
x)	Type F1/BLS	–	DSX0.4.LA164.FW.BLS
xi)	Type F2	–	DSX0.4.LA164.FW
xii)	Type G	–	DBD.1.LA034.DO.NR.W028
xiii)	Type HW	–	DWL.1.LA024.HN.W011
xiv)	Type I	–	CSV.T.1.LM0448.M1.SY
xv)	Type J1/BLC-E	–	DSX0.4.LA164.BLC.EGS
xvi)	Type K1	–	DSX1.2.LA304.SY
xvii)	Type RW1	–	VMXII.1.LA074.V2.X2L2.W046

6.1.2 Photometric Datasheets

i)	Type AW	–	DSX2.2.LA364.FW
ii)	Type B1	–	DSX2.2.LA304.FW
iii)	Type B1/BLS	–	DSX2.2.LA304.FW.BLS
iv)	Type CW	–	DSX0.4.LA164.AY
v)	Type C1	–	DSX0.4.LA164.AY
vi)	Type C1/BLS	–	DSX0.4.LA164.AY.BLS
vii)	Type DW	–	DSX0.1.LA104.AY
viii)	Type E1	–	DSX0.4.LA224.AY
ix)	Type F1	–	DSX0.4.LA164.FW
x)	Type F1/BLS	–	DSX0.4.LA164.FW.BLS
xi)	Type F2	–	DSX0.4.LA164.FW
xii)	Type G	–	DBD.1.LA034.DO.NR.W028
xiii)	Type HW	–	DWL.1.LA024.HN.W011
xiv)	Type I	–	CSVT.1.LM0448.M1.SY
xv)	Type J1/BLC-E	–	DSX0.4.LA164.BLC.EGS
xvi)	Type K1	–	DSX1.2.LA304.SY
xvii)	Type RW1	–	VMXII.1.LA074.V2.X2L2.W046

6.1.3 Unit 03 External Lighting Design Drawings

- i) 02514-HAN-PL-03-DR-E-006341 – Rev2 : Dated 26/02/2024 : Site Plan – Unit 03 – Electrical Services – External Lighting Design Strategy
- ii) 02514-HAN-PL-03-DR-E-006351 – Rev2 : Dated 26/02/2024: Site Plan – Unit 03 – Electrical Services – External Lighting Design Layout
- iii) 02514-HAN-PL-03-DR-E-006361 – Rev2 : Dated 26/02/2024: Site Plan – Unit 03 – Electrical Services – External Lighting Design Illumination Plots
- iv) 02514-HAN-PL-03-DR-E-006371 – Rev2 : Dated 26/02/2024: Site Plan – Unit 03 – Electrical Services – External Lighting Control Strategy
- v) 02514-HAN-PL-03-DR-E-006381 – Rev2 : Dated 26/02/2024: Site Plan – Unit 03 – Electrical Services – External Lighting Controls Layout

6.1.4 Unit 04 External Lighting Design Drawings

- i) 02514-HAN-PL-04-DR-E-006341 – Rev2 : Dated 26/02/2024: Site Plan – Unit 04 – Electrical Services – External Lighting Design Strategy
- ii) 02514-HAN-PL-04-DR-E-006351 – Rev2 : Dated 26/02/2024: Site Plan – Unit 04 – Electrical Services – External Lighting Design Layout
- iii) 02514-HAN-PL-04-DR-E-006361 – Rev2 : Dated 26/02/2024: Site Plan – Unit 04 – Electrical Services – External Lighting Design Illumination Plots
- iv) 02514-HAN-PL-04-DR-E-006371 – Rev2 : Dated 26/02/2024: Site Plan – Unit 04 – Electrical Services – External Lighting Control Strategy
- v) 02514-HAN-PL-04-DR-E-006381 – Rev2 : Dated 26/02/2024: Site Plan – Unit 04 – Electrical Services – External Lighting Controls Layout

6.1.5 Phase 3 Site Access Spine Road External Lighting Design Drawings

- i) 02514-HAN-PL-R3-DR-E-006341 – Rev2 : Dated 26/02/2024: Site Plan – Phase 3 Site Access Road – Electrical Services – External Lighting Design Strategy
- ii) 02514-HAN-PL-R3-DR-E-006351 – Rev2 : Dated 26/02/2024: Site Plan – Phase 3 Site Access Road – Electrical Services – External Lighting Design Layout
- iii) 02514-HAN-PL-R3-DR-E-006361 – Rev2 : Dated 26/02/2024: Site Plan – Phase 3 Site Access Road – Electrical Services – External Lighting Design Illumination Plots
- iv) 02514-HAN-PL-R3-DR-E-006371 – Rev2 : Dated 26/02/2024: Site Plan – Phase 3 Site Access Road – Electrical Services – External Lighting Control Strategy
- v) 02514-HAN-PL-R3-DR-E-006381 – Rev2 : Dated 26/02/2024: Site Plan – Phase 3 Site Access Road – Electrical Services – External Lighting Controls Layout

> DATASHEET - EXTERNAL - DSX1

DSX2.2.LA364.FW



Product image may not represent the final configuration stated above.



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PRODUCT SPECIFICATION

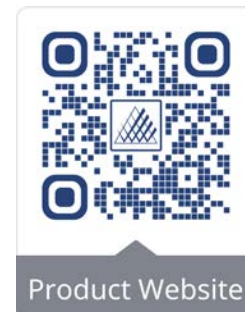


DSX2 HOLOPHANE WEBSITE

Holophane DSX2 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.36,000 lumen with a nominal 4000K colour temperature
- Forward throw light distribution



PERFORMANCE

Drive Current from Driver:	1,050mA
Power:	328W
Fitting Current:	1.47A
Power Factor:	0.98
Fitting Inrush:	106A - 0.3ms
Number of Drivers:	2
2x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	4
Total Number of LEDs:	50
Minimum Dim Level:	7 %
Optical Risk Group:	1



15Kg₂



0.1M



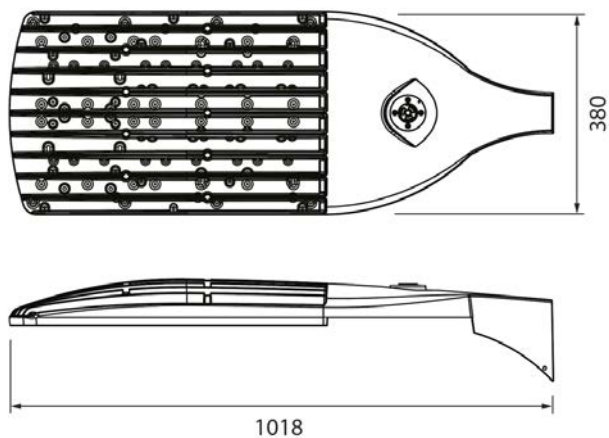
42 0328 0000 100*



[Installation Guide](#)

*Generic UMSUG code based on product wattage and some or all of product family being included within Elexon data base.

DIMENSIONS



CIBSE TM66 - CEAM RATING

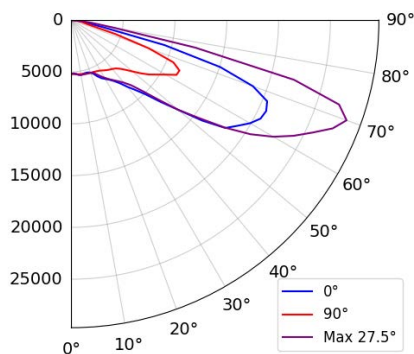
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

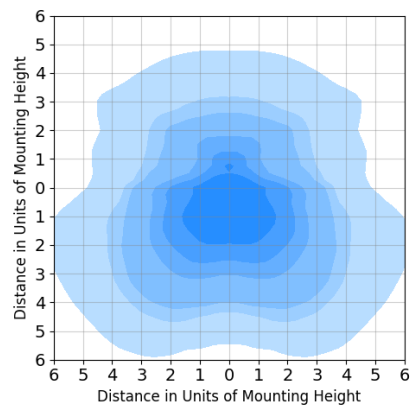
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

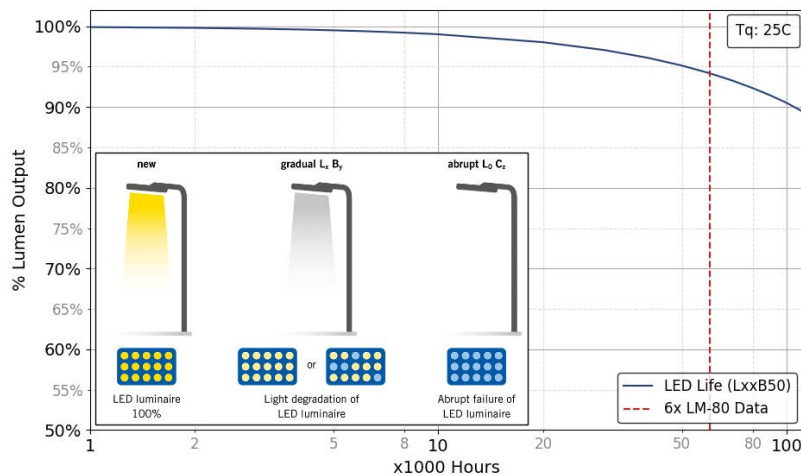


Isoilluminance Plot



Lumens:	40,789
CCT:	4000K
CRI:	70
IES File:	DSX2.2.LA364.FW
G-Class:	G*2 Imax @ ≥ 70°: 693 Imax @ ≥ 80°: 118 Imax @ ≥ 90°: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
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*Choosing a custom colour may increase the cost and lead time.

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> DATASHEET - EXTERNAL - DSX2

DSX2.2.LA304.FW



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PRODUCT SPECIFICATION

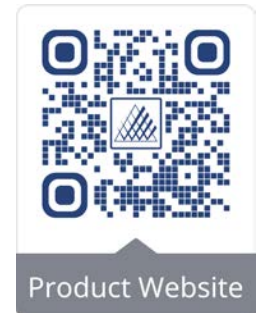


DSX2 HOLOPHANE WEBSITE

Holophane DSX2 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.30,000 lumen with a nominal 4000K colour temperature
- Forward throw light distribution



PERFORMANCE

Drive Current from Driver:	1,050mA
Power:	282W
Fitting Current:	1.26A
Power Factor:	0.97
Fitting Inrush:	106A - 0.3ms
Number of Drivers:	2
2x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	4
Total Number of LEDs:	20
Minimum Dim Level:	7 %
Optical Risk Group:	1



15Kg₂



0.1M



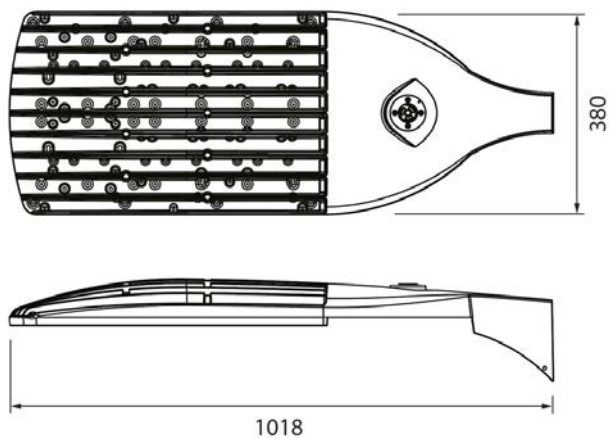
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*Generic UMSUG code based on product wattage and some or all of product family being included within Elexon data base.

DIMENSIONS



CIBSE TM66 - CEAM RATING

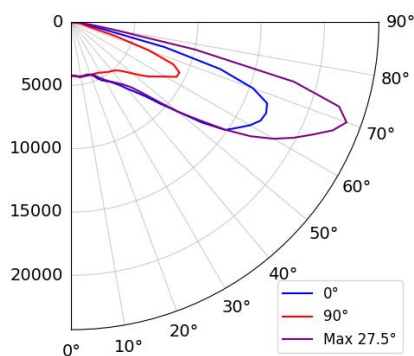
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
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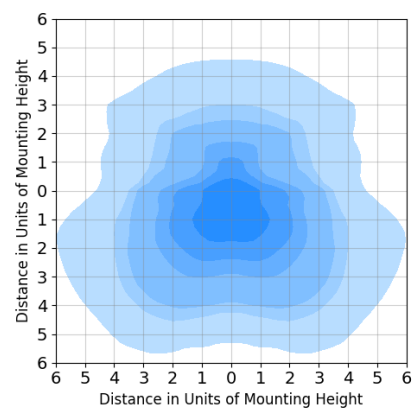
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

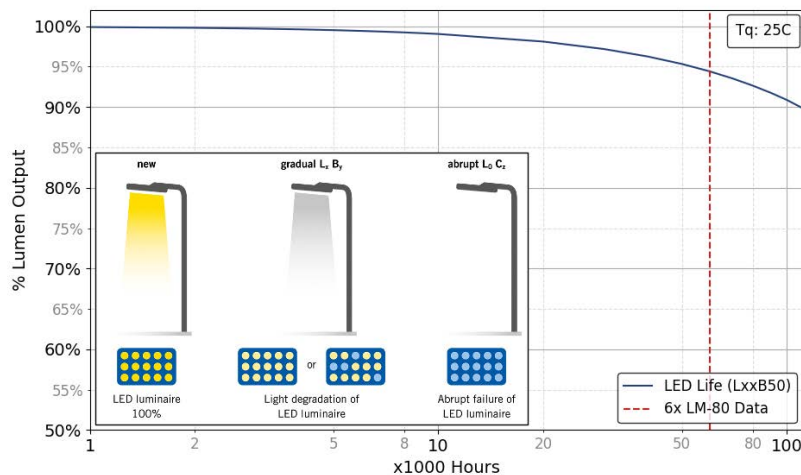


Isoilluminance Plot



Lumens:	33,390
CCT:	4000K
CRI:	70
IES File:	DSX2.2.LA304.FW
G-Class:	G*2 Imax @ ≥ 70°: 693 Imax @ ≥ 80°: 118 Imax @ ≥ 90°: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
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> DATASHEET - EXTERNAL - DSX2

DSX2.2.LA304.FW.BLS



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PRODUCT SPECIFICATION

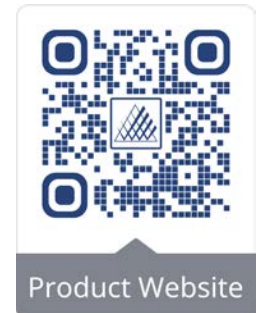


DSX2 HOLOPHANE WEBSITE

Holophane DSX2 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.30,000 lumen with a nominal 4000K colour temperature
- Forward throw light distribution



PERFORMANCE

Drive Current from Driver:	1,050mA
Power:	282W
Fitting Current:	1.26A
Power Factor:	0.97
Fitting Inrush:	106A - 0.3ms
Number of Drivers:	2
2x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	4
Total Number of LEDs:	20
Minimum Dim Level:	7 %
Optical Risk Group:	1



15Kg₂



0.1M



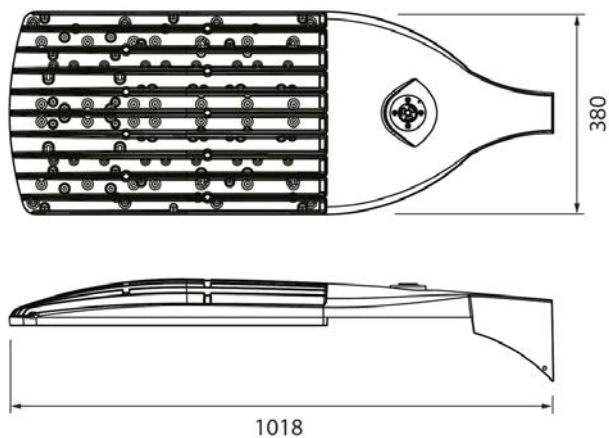
42 0282 0000 100*



[Installation Guide](#)

*Generic UMSUG code based on product wattage and some or all of product family being included within Elexon data base.

DIMENSIONS



CIBSE TM66 - CEAM RATING

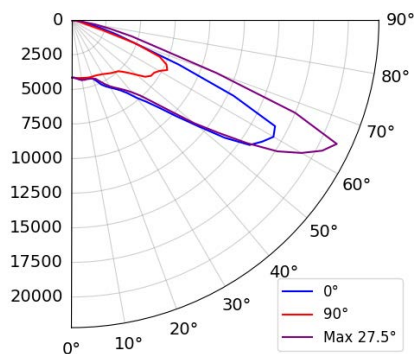
2.3*

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Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

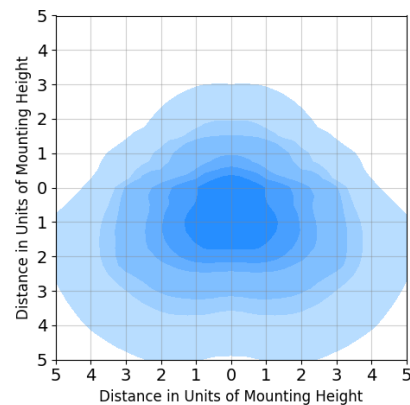
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

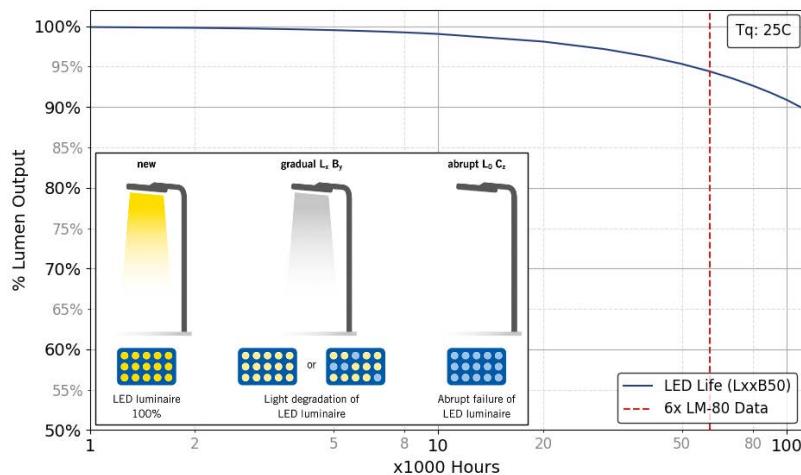


Isoilluminance Plot



Lumens:	26,070
CCT:	4000K
CRI:	70
IES File:	DSX2.2.LA304.FW.BLS
G-Class:	G*3 Imax @ ≥ 70°: 681 Imax @ ≥ 80°: 78 Imax @ ≥ 90°: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

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PRODUCT SPECIFICATION

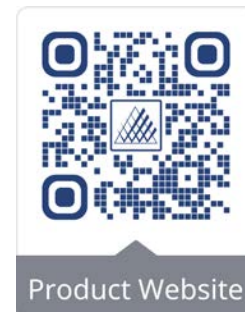


DSXO HOLOPHANE WEBSITE

Holophane DSX0 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

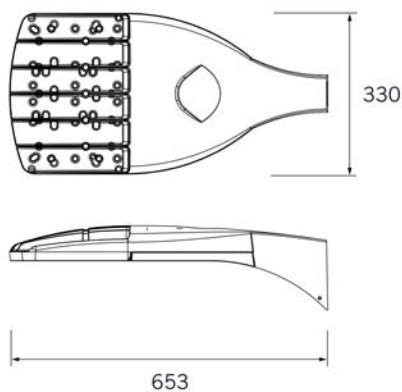


0.09M



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DIMENSIONS



CIBSE TM66 - CEAM RATING

2.3*

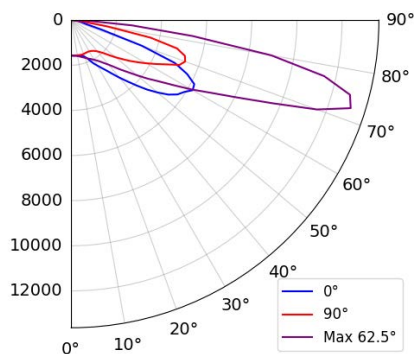
0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

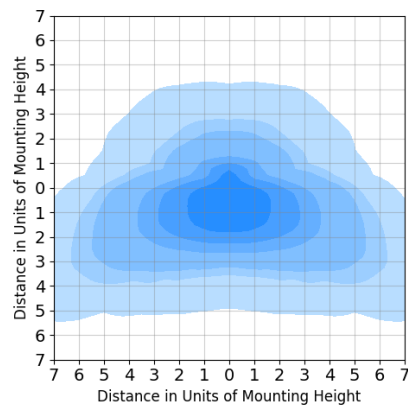
PHOTOMETRY



Polar Plot

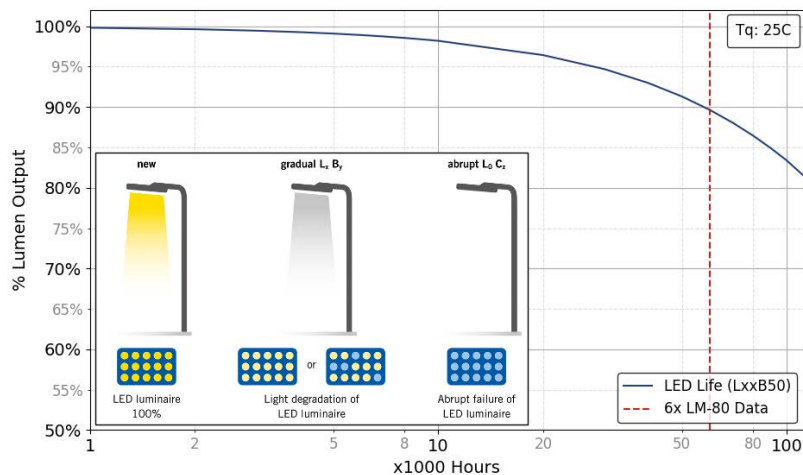


Isoilluminance Plot



Lumens:	15,510
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.AY (TZ)

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
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> DATASHEET - AMENITY - DSX0

DSX0.4.LA164.AY



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PRODUCT SPECIFICATION

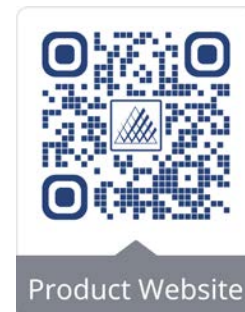


DSXO HOLOPHANE WEBSITE

Holophane DSX0 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

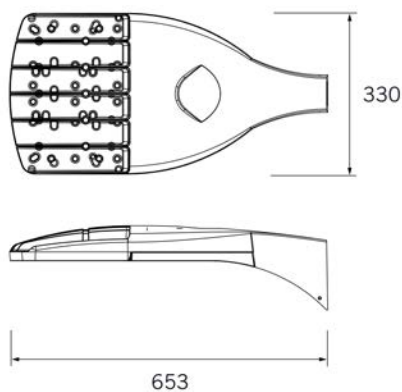


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

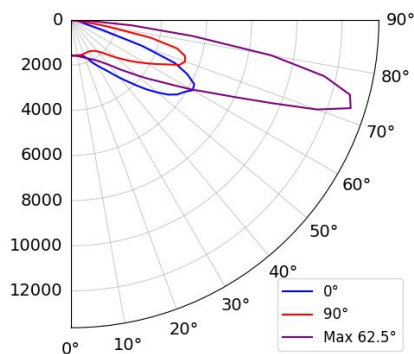
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

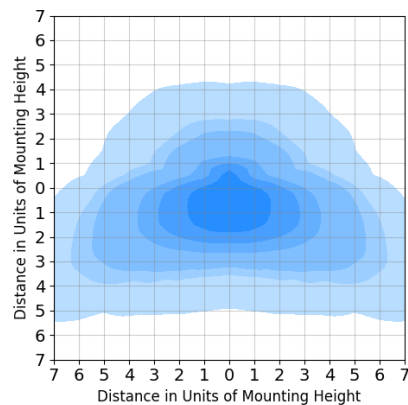
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

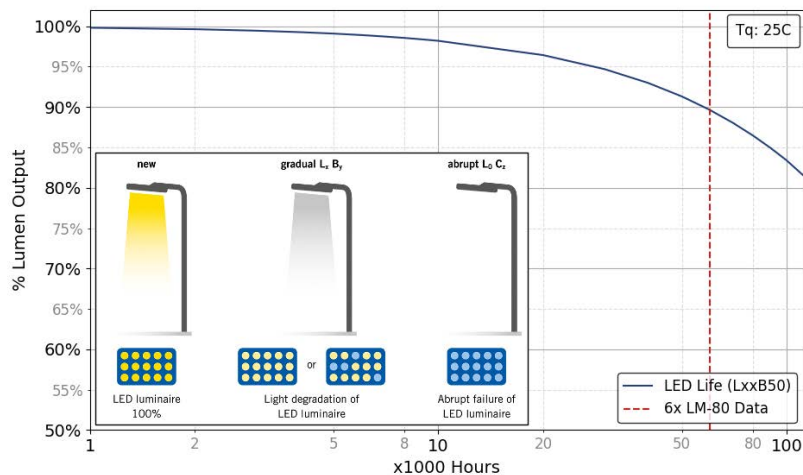


Isoilluminance Plot



Lumens:	15,510
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.AY (TZ)

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

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The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

> DATASHEET - AMENITY - DSX0

DSX0.4.LA164.AY.BLS



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PRODUCT SPECIFICATION

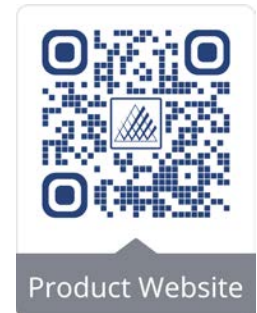


DSXO HOLOPHANE WEBSITE

Holophane DSXO luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

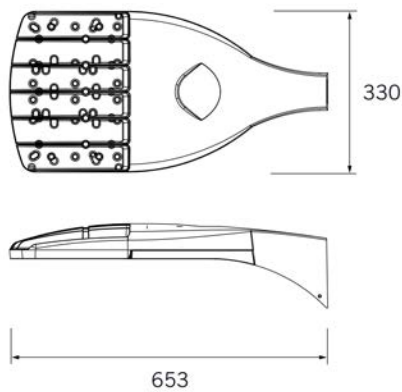


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

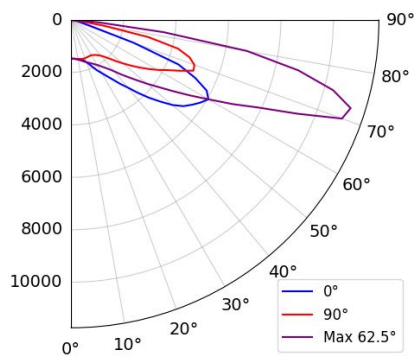
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

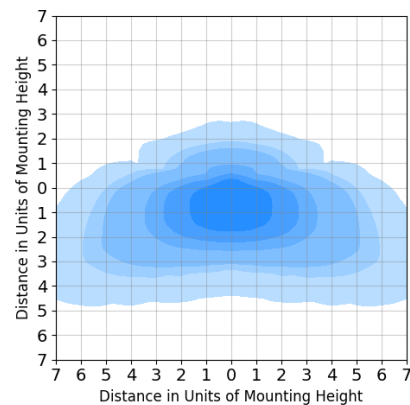
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

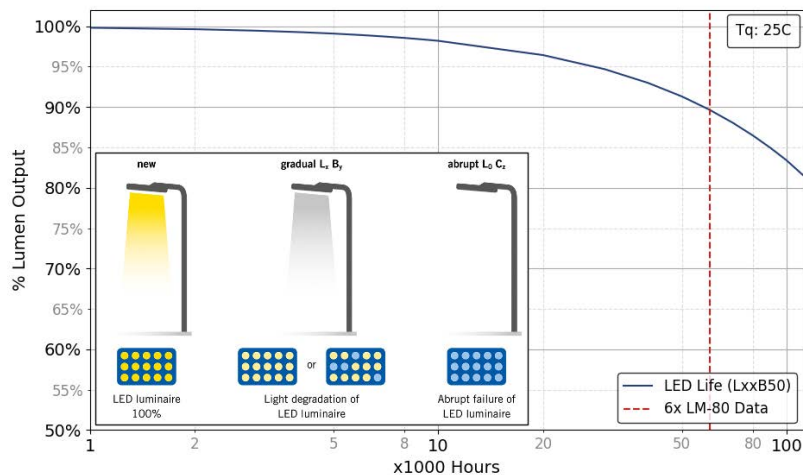


Isoilluminance Plot



Lumens:	13,445
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.AY.BLS (TZ)

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

	C1 Smooth White (RAL9016)
	C4 Smooth Graphite (RAL7011)
	C6 Smooth Grey (RAL7035)
	C7 Textured Black (RAL9005)
	C9 Metallic Silver (RAL9006)

Custom Colour Available

	RAL**** Customer specified colour
--	--

*Choosing a custom colour may increase the cost and lead time.

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> DATASHEET - AMENITY - DSX0

DSX0.1.LA104.AY



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PRODUCT SPECIFICATION

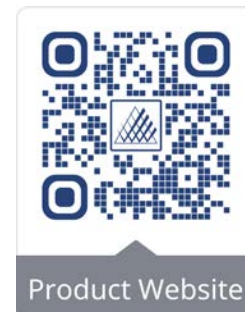


DSXO HOLOPHANE WEBSITE

Holophane DSXO luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 1
- LED light engine producing c.10,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution



PERFORMANCE

Drive Current from Driver:	1,250mA
Power:	81W
Fitting Current:	0.36A
Power Factor:	0.97
Fitting Inrush:	43A - 0.26ms
Number of Drivers:	1
1x Driver 1 Inrush:	43A - 0.26ms
Max Drivers per 16A Type B MCB:	10
Max Fittings per 16A Type B MCB:	10
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

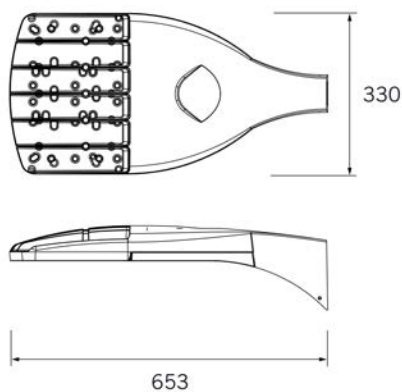


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

2.3*

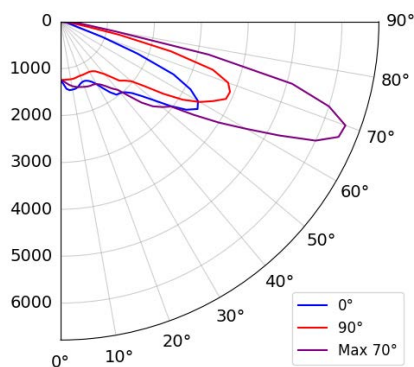
0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

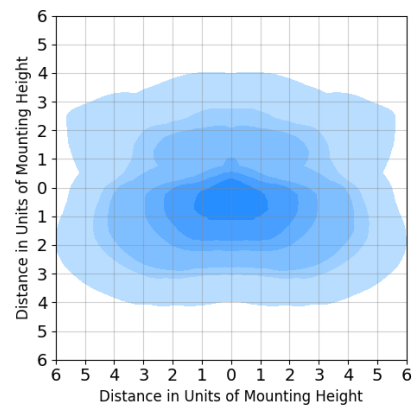
PHOTOMETRY



Polar Plot

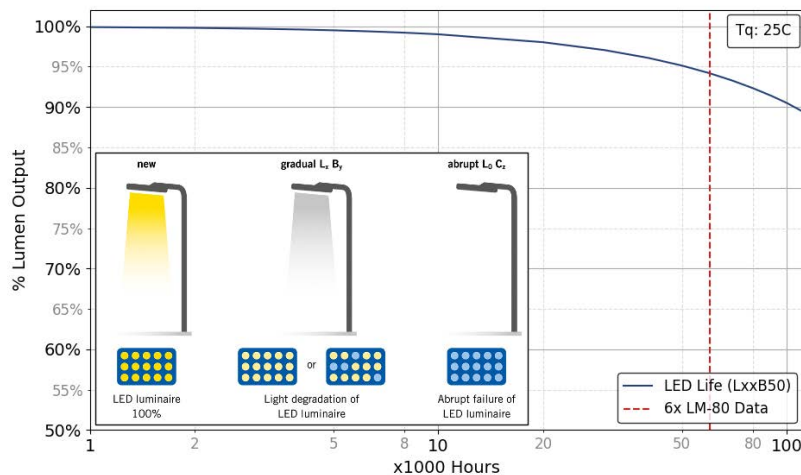


Isoilluminance Plot



Lumens:	9,426
CCT:	4000K
CRI:	70
IES File:	DSX0.1.LA104.AY
G-Class:	G*2 Imax @ $\geq 70^\circ$: 687 Imax @ $\geq 80^\circ$: 127 Imax @ $\geq 90^\circ$: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

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> DATASHEET - AMENITY - DSX0

DSX0.4.LA224.AY



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PRODUCT SPECIFICATION

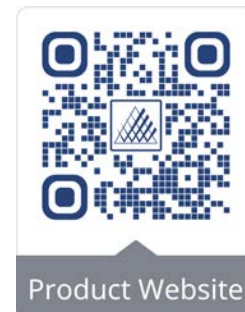


DSXO HOLOPHANE WEBSITE

Holophane DSXO luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 4
- LED light engine producing c.22,000 lm with a nominal 4000°K colour temperature
- Asymmetric light distribution



PERFORMANCE

Drive Current from Driver:	1,385mA
Power:	169W
Fitting Current:	0.76A
Fitting Inrush:	83A - 0.261ms
Number of Drivers:	1
1x Driver 1 Inrush:	83.2A - 0.261ms
Max Drivers per 16A Type B MCB:	5
Max Fittings per 16A Type B MCB:	5
Total Number of LEDs:	20
Minimum Dim Level:	5 %
Optical Risk Group:	1



8Kg₂

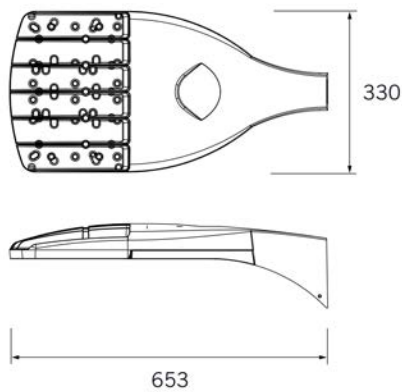


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

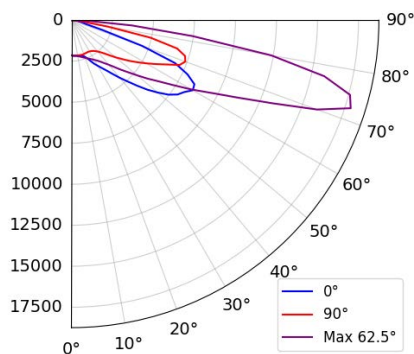
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

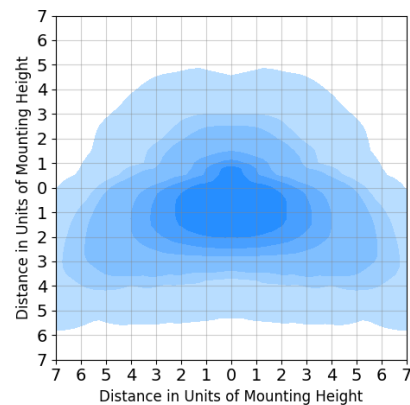
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

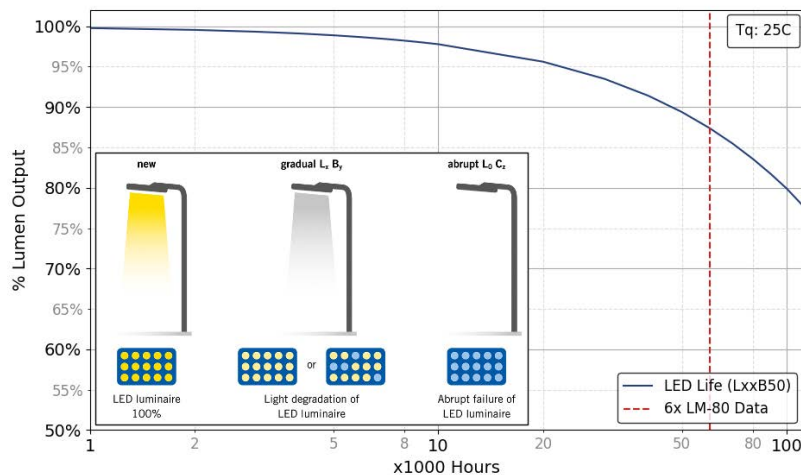


Isoilluminance Plot



Lumens:	21,327
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA224.AY

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

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> DATASHEET - AMENITY - DSX0

DSX0.4.LA164.FW



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PRODUCT SPECIFICATION

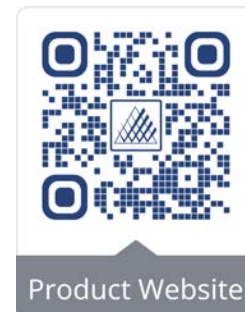


DSXO HOLOPHANE WEBSITE

Holophane DSX0 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Forward throw light distribution



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

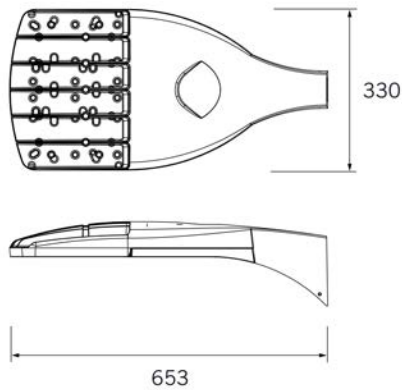


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

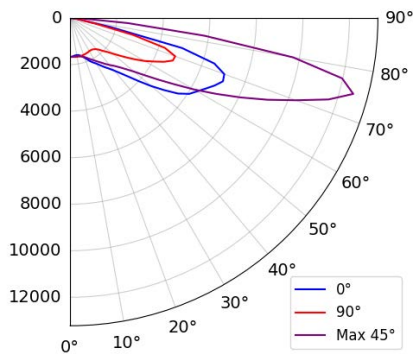
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

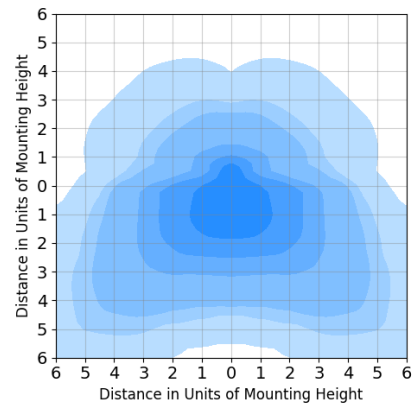
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

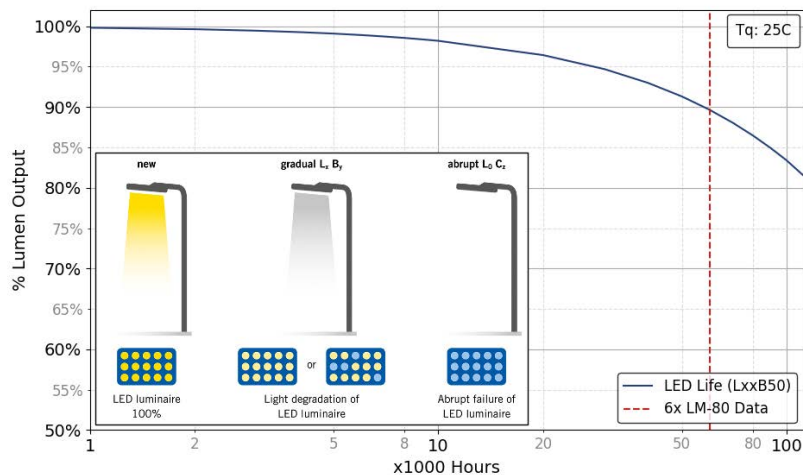


Isoilluminance Plot



Lumens:	15,742
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.FW (TZ)

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

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> DATASHEET - AMENITY - DSX0

DSX0.4.LA164.FW.BLS



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PRODUCT SPECIFICATION

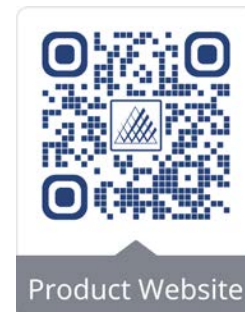


DSXO HOLOPHANE WEBSITE

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This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Forward throw light distribution



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

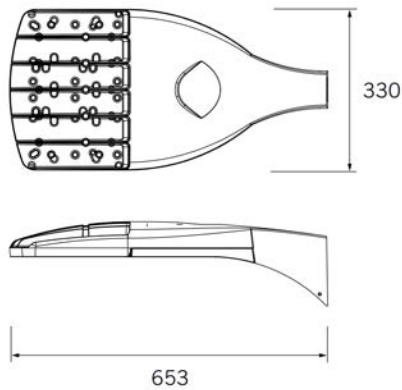


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

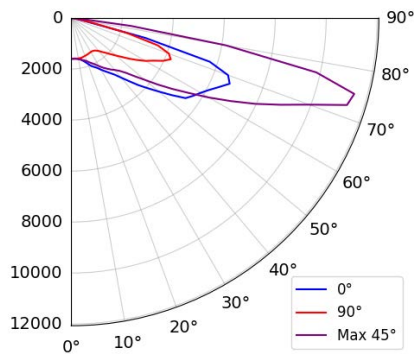
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

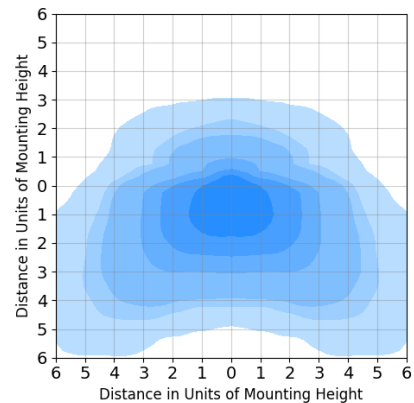
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

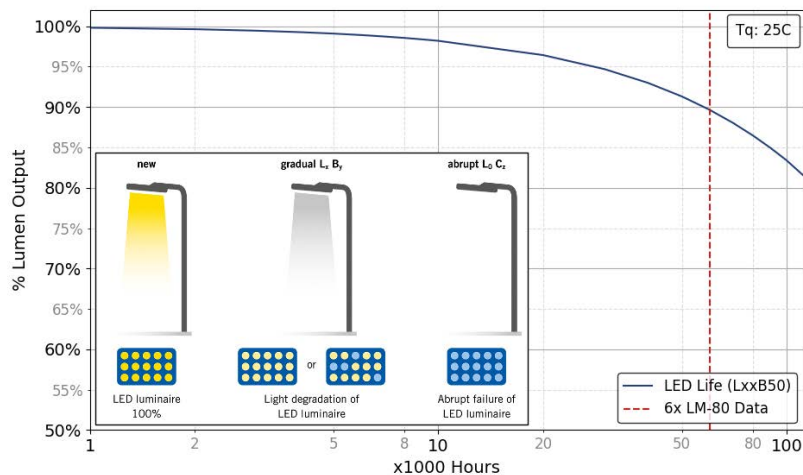


Isoilluminance Plot



Lumens:	13,542
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.FW.BLS (TZ)

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

	C1 Smooth White (RAL9016)
	C4 Smooth Graphite (RAL7011)
	C6 Smooth Grey (RAL7035)
	C7 Textured Black (RAL9005)
	C9 Metallic Silver (RAL9006)

Custom Colour Available

	RAL**** Customer specified colour
--	--

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> DATASHEET - AMENITY - DSX0

DSX0.4.LA164.FW



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PRODUCT SPECIFICATION

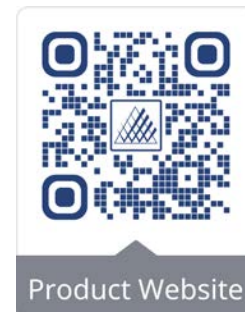


DSXO HOLOPHANE WEBSITE

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This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Forward throw light distribution



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

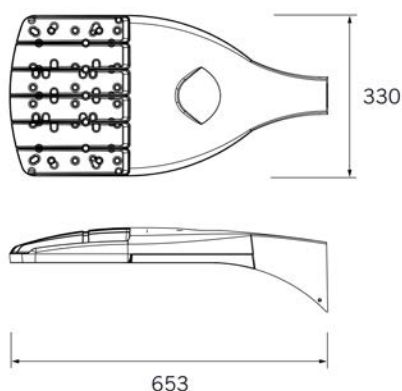


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

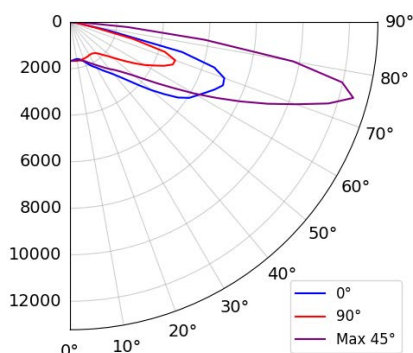
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

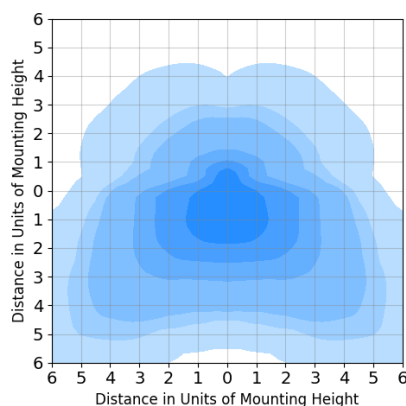
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)

Polar Plot

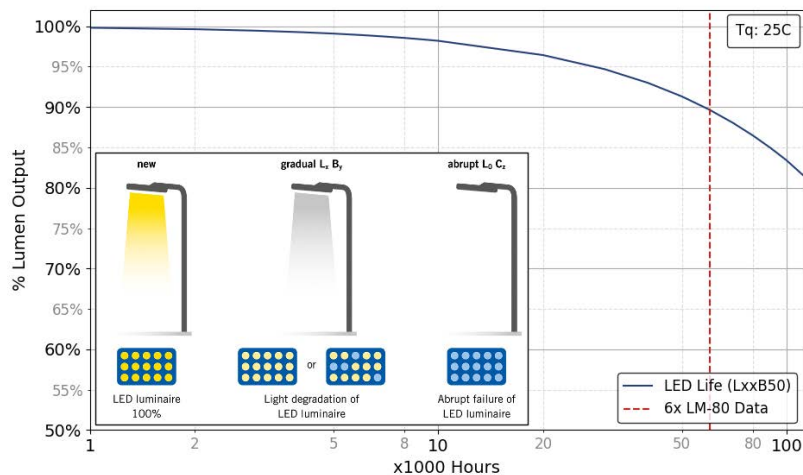


Isoilluminance Plot



Lumens:	15,742
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.FW (TZ)

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

	C1 Smooth White (RAL9016)
	C4 Smooth Graphite (RAL7011)
	C6 Smooth Grey (RAL7035)
	C7 Textured Black (RAL9005)
	C9 Metallic Silver (RAL9006)

Custom Colour Available

	RAL**** Customer specified colour
--	--

*Choosing a custom colour may increase the cost and lead time.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

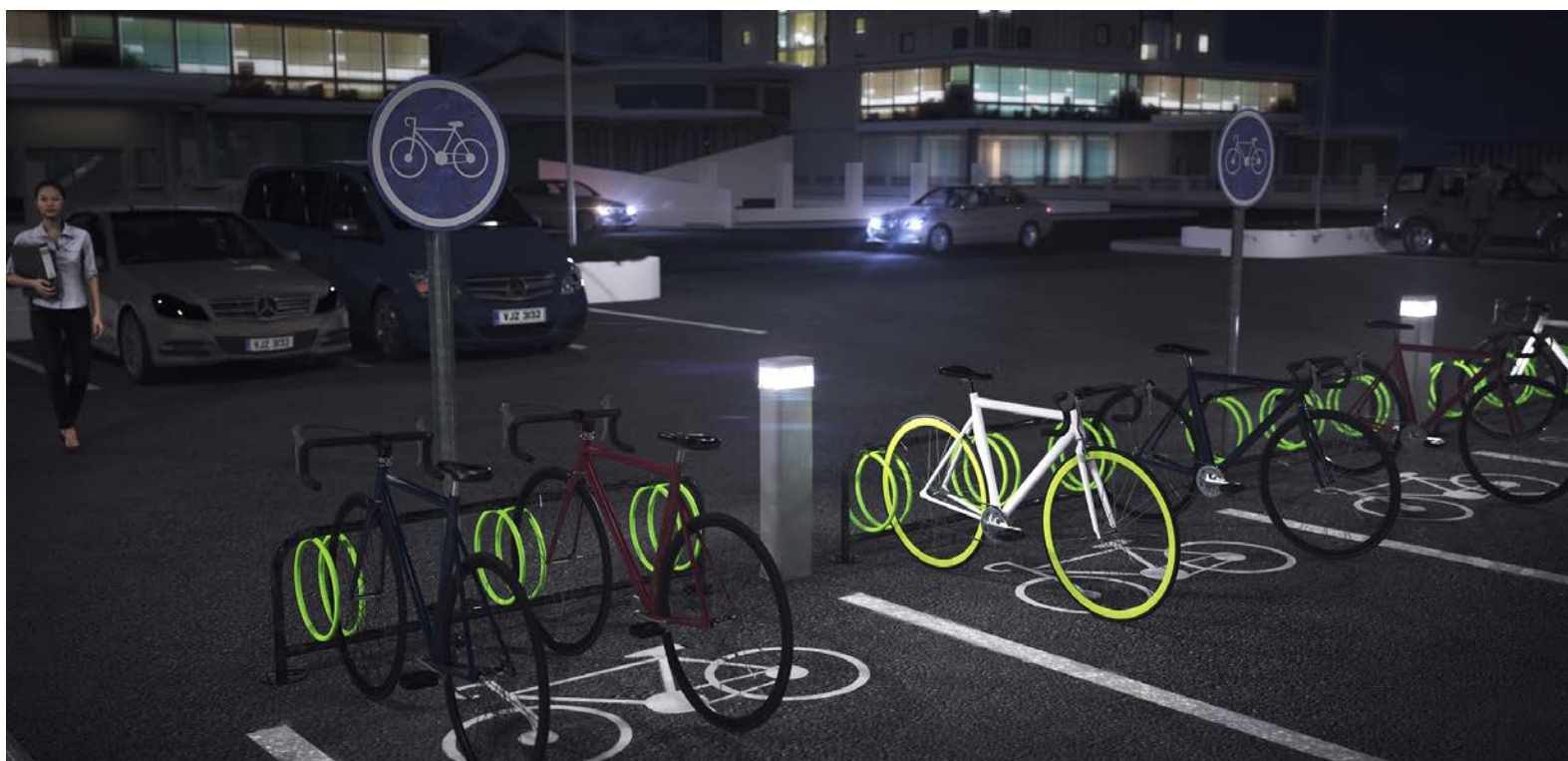
The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

> DATASHEET - EXTERNAL - DBD

DBD.1.LA034.DO.NR.W028



Product image may not represent the final configuration stated above.



The information, data and specifications displayed on this Datasheet are from a partial product configuration. Therefore data may differ from final product supplied.

PRODUCT SPECIFICATION

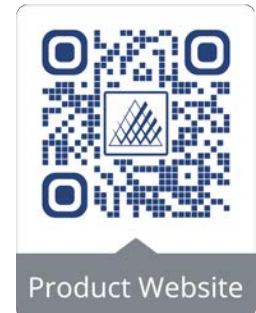


DBD HOLOPHANE WEBSITE

Holophane Denver iD: Bollard luminaire. Extruded marine grade aluminium body with die-cast aluminium top and base secured by stainless steel nuts and sealed to IP65. The optical arrangement consists of individual optical modules with a patented transition zone to minimise glare. Suitable for flange base mounting (bolts available as an accessory).

This specific SKU includes:

- Series 1
- LED light engine producing c.3,000 lm with a nominal 4000K colour temperature
- Double sided
- Long and Narrow light distribution
- 28W



PERFORMANCE

Drive Current from Driver:	850mA
Power:	28W
Fitting Current:	0.13A
Power Factor:	0.97
Fitting Inrush:	22A - 0.29ms
Number of Drivers:	1
1x Driver 1 Inrush:	22A - 0.29ms
Max Drivers per 16A Type B MCB:	20
Max Fittings per 16A Type B MCB:	20
Total Number of LEDs:	10
Minimum Dim Level:	8 %
THDi:	8.6
SVM:	0.07
Pst LM:	0.21
Optical Risk Group:	1

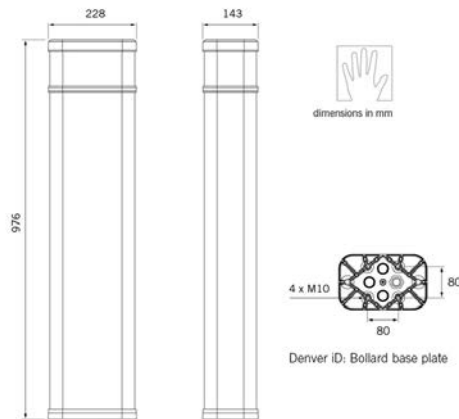


9.5Kg



[Installation Guide](#)

DIMENSIONS



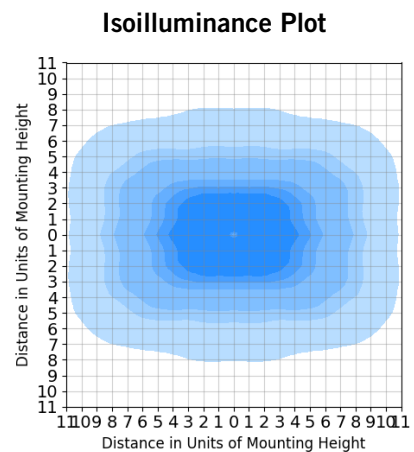
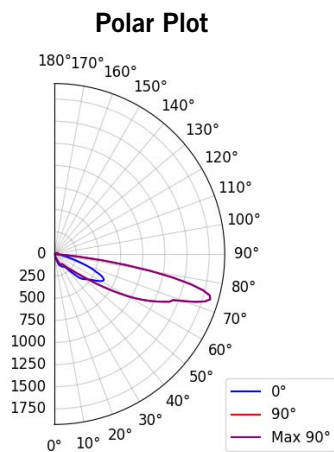
CIBSE TM66 - CEAM RATING

2.4*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

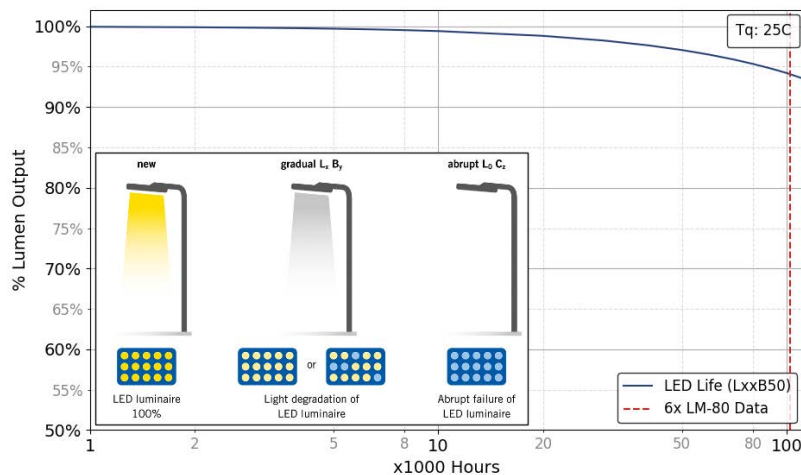
*Preliminary Rating

PHOTOMETRY [↓ IES FILE](#)



Lumens:	2,832
CCT:	4000K
CRI:	70
IES File:	DBD.1.LA034.DO.NR.W028

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

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The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

> DATASHEET - EXTERNAL - DWL

DWL.1.LA024.HN.W011



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PRODUCT SPECIFICATION

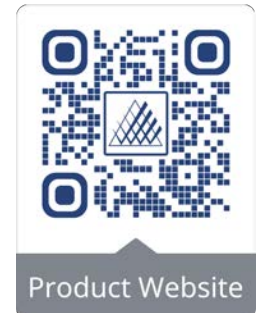


DWL HOLOPHANE WEBSITE

Holophane Denver iD: Wall consists of a 2-part body and a removable LED module manufactured from LM6 marine grade die-cast aluminum with integrated thermal management properties. The LED module optical arrangement consists of LEDs with individual PMMA optical lenses surrounded by a patented white Transition Zone to reduce perceived glare. This is sealed behind high-transparency 'hydrophilic' glass. Both luminaire body and LED module are sealed to IP65 and rated IK10. Drivers and LED are mounted separately from each other to promote low operating temperatures and long system life. Mounting of the luminaire is facilitated by mounting the back casting of luminaire to suitable surface. Cable entry and termination to the luminaire is via an 2 x IP65 M20 cable gland. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 1
- LED light engine producing c.2,000 lm with a nominal 4000°K colour temperature
- High beam long and narrow distribution
- 11W



PERFORMANCE

Drive Current from Driver:	360mA
Power:	10.3W
Fitting Current:	0.05A
Power Factor:	0.97
Fitting Inrush:	15A - 0.36ms
Number of Drivers:	1
1x Driver 1 Inrush:	15A - 0.36ms
Max Drivers per 16A Type B MCB:	23
Max Fittings per 16A Type B MCB:	23
Total Number of LEDs:	8
Minimum Dim Level:	19 %
THDi:	8.5
SVM:	0.07
Pst LM:	0.12
Optical Risk Group:	1

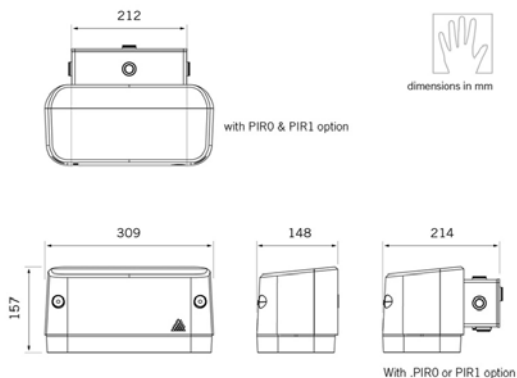


6.5Kg



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

2.6*

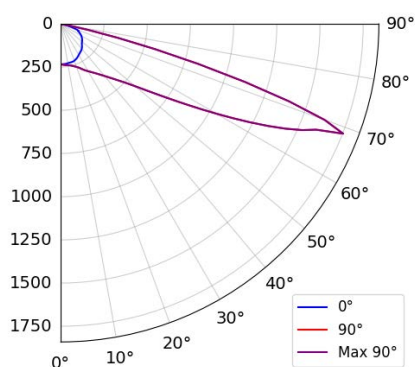
0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

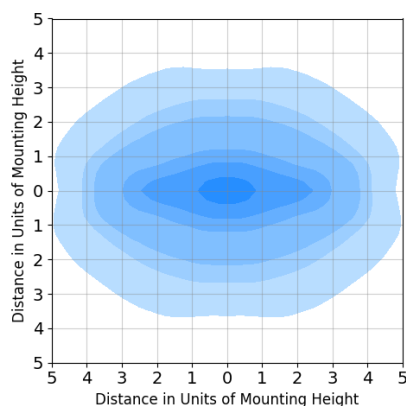
PHOTOMETRY



Polar Plot

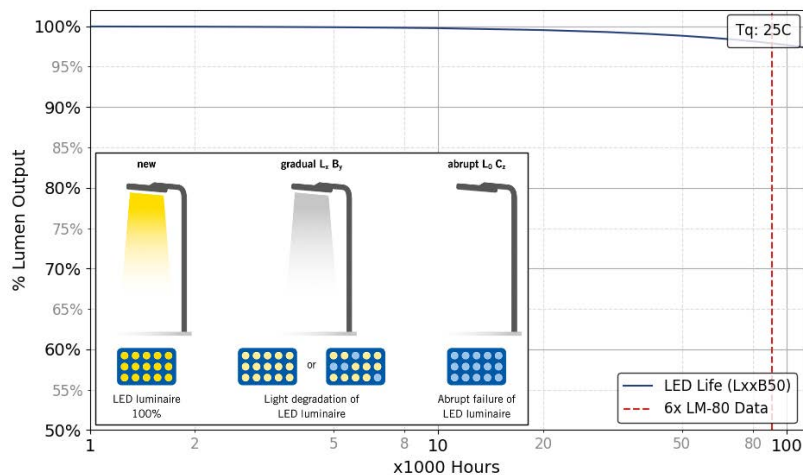


Isoilluminance Plot



Lumens:	1,497
CCT:	4000K
CRI:	70
IES File:	DWL.1.LA024.HN.W011
G-Class:	G*3 Imax @ $\geq 70^\circ$: 1085 Imax @ $\geq 80^\circ$: 44 Imax @ $\geq 90^\circ$: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

C1	Smooth White (RAL9016)
C4	Smooth Graphite (RAL7011)
C6	Smooth Grey (RAL7035)
C7	Textured Black (RAL9005)
C9	Metallic Silver (RAL9006)

Custom Colour Available

RAL****	Customer specified colour
----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

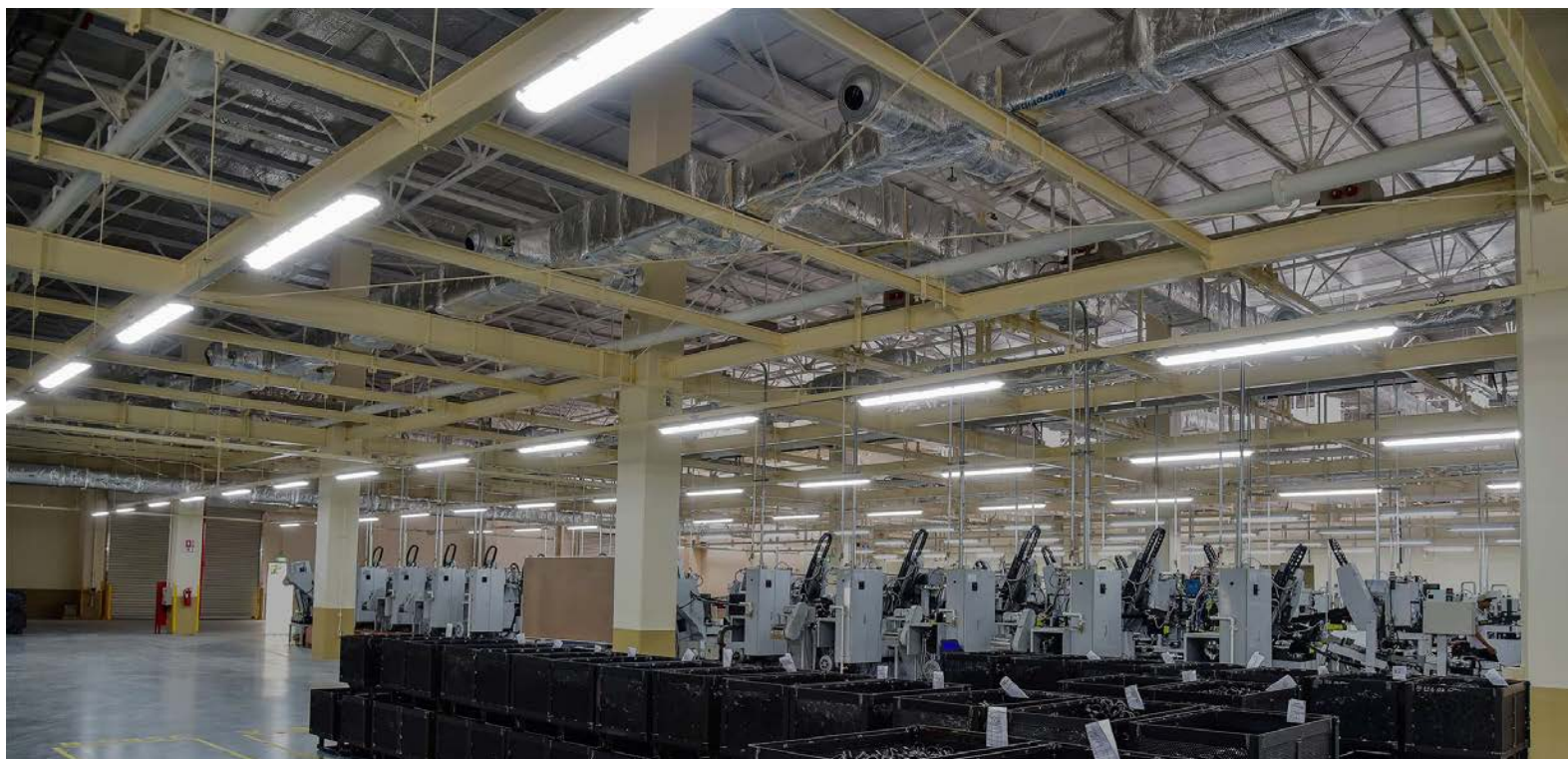
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> DATASHEET - INTERNAL - CSVT

CSVT.1.LM0448.M1.SY



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PRODUCT SPECIFICATION

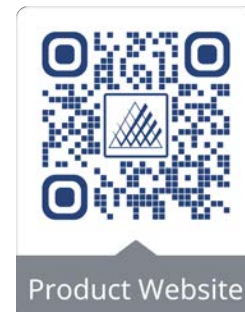


[WWW.HOLOPHANE.CO.UK](https://www.holophane.co.uk)

Holophane CSVT LED linear batten shall consist of a 1200mm polycarbonate housing which features a 'poured in place' polyurethane gasket and a frosted polycarbonate lens. The luminaire shall be sealed to IP65 and rated to IK09. CSVT can be either ceiling or surface mounted. Cable termination is via a factory fitted side-entry M20 cable gland with cut-out areas for top entry termination (suitable sealing provided by others). The design allows for fast installation via the stainless steel brackets and stainless steel latches that allow quick access for easy maintenance. Preliminary CIBSE TM66 (CEAM) Rating: 2.2 - Definite/substantial progress to circularity.

This specific SKU includes:

- Series 1
- LED light engine producing c.4,000 lm with a nominal 4000K colour temperature, 80CRI
- 1 LED module
- A symmetrical light distribution



PERFORMANCE

Drive Current from Driver:	625mA
Power:	28W
Fitting Current:	0.13A
Fitting Inrush:	20A - 0.18ms
Number of Drivers:	1
1x Driver 1 Inrush:	20A - 0.18ms
Max Drivers per 16A Type B MCB:	18
Max Fittings per 16A Type B MCB:	18
Total Number of LEDs:	128
Minimum Dim Level:	22 %



2.5Kg

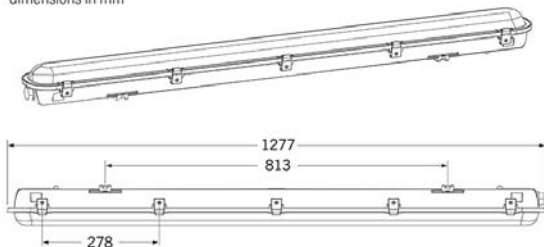


[Installation Guide](#)

DIMENSIONS



dimensions in mm



CIBSE TM66 - CEAM RATING

2.2*

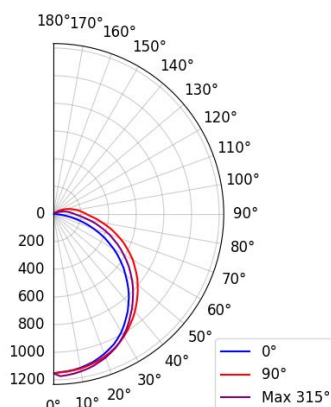
0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

PHOTOMETRY

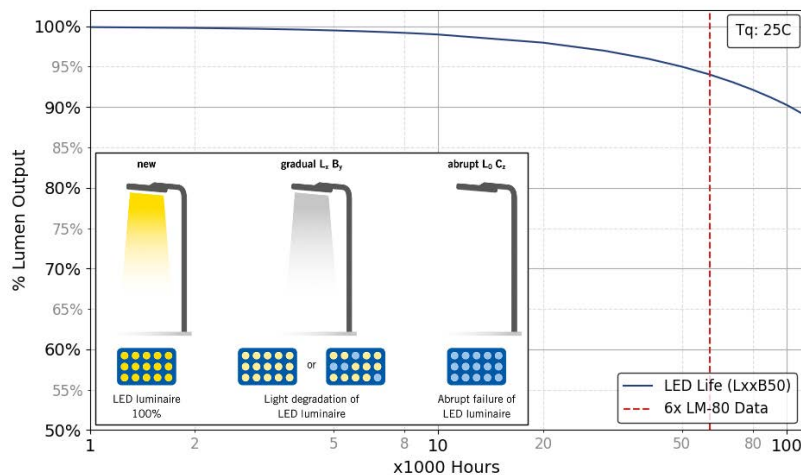
↓ IES FILE

Polar Plot



Lumens:	4,008
CCT:	4000K
CRI:	80
IES File:	CSV.T.1.LM0448.M1.SY

LLMF GRAPH



▶ 4000K

For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOURS

Standard Colours Available

C6	Smooth Grey (RAL7035)
-----------	-----------------------

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

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> DATASHEET - AMENITY - DSX0

DSX0.4.LA164.BLC.EGS



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PRODUCT SPECIFICATION

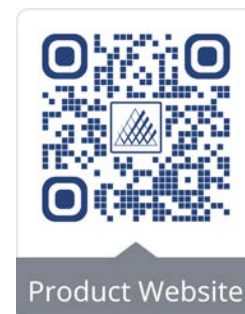


DSXO HOLOPHANE WEBSITE

Holophane DSXO luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 4
- LED light engine producing c.16,000 lm with a nominal 4000°K colour temperature
- Long & narrow distribution with extreme backlight cut-off



PERFORMANCE

Drive Current from Driver:	932mA
Power:	114W
Fitting Current:	0.51A
Fitting Inrush:	53A - 0.3ms
Number of Drivers:	1
1x Driver 1 Inrush:	53A - 0.3ms
Max Drivers per 16A Type B MCB:	8
Max Fittings per 16A Type B MCB:	8
Total Number of LEDs:	20
Minimum Dim Level:	8 %
Optical Risk Group:	1



8Kg₂

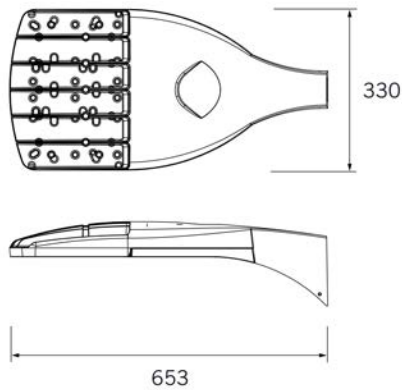


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

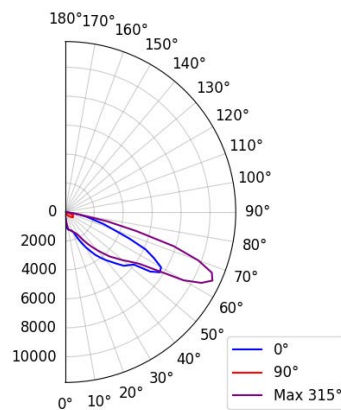
2.3*

0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

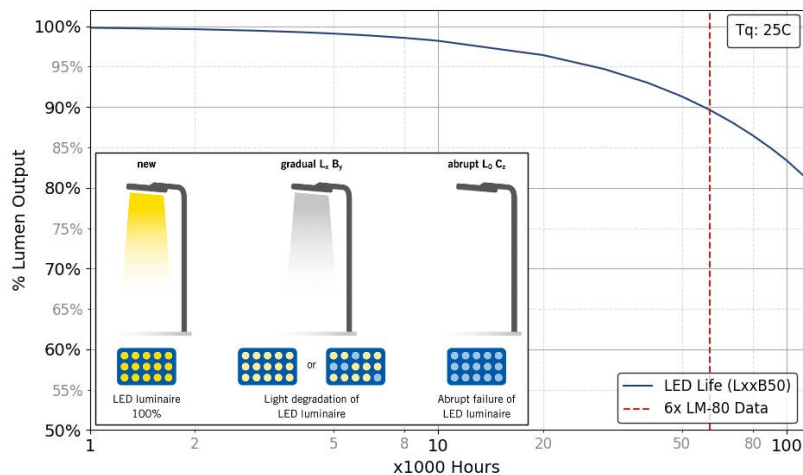
PHOTOMETRY [↓ IES FILE](#)

Polar Plot



Lumens:	10,498
CCT:	4000K
CRI:	70
IES File:	DSX0.4.LA164.BLC.EGS (TZ)
G-Class:	G*1 Imax @ ≥ 70°: 942 Imax @ ≥ 80°: 167 Imax @ ≥ 90°: 2

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

	C1 Smooth White (RAL9016)
	C4 Smooth Graphite (RAL7011)
	C6 Smooth Grey (RAL7035)
	C7 Textured Black (RAL9005)
	C9 Metallic Silver (RAL9006)

Custom Colour Available

	RAL**** Customer specified colour
--	--

*Choosing a custom colour may increase the cost and lead time.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

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> DATASHEET - EXTERNAL - DSX1

DSX1.2.LA304.SY



Product image may not represent the final configuration stated above.



PRODUCT SPECIFICATION

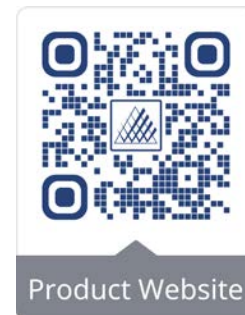


DSX1 HOLOPHANE WEBSITE

Holophane DSX1 luminaire. Single-piece die-cast aluminium housing conforming to EN1706 AC-46500, with integral heat sink fins to optimise thermal management. LED light engine modules are IP66 with individual lenses (PMMA or silicone). Housing sealed to IP65 via hinged access door (two captive fixing screws). Installation via bespoke Holophane mounting feature for quick and easy installation. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).

This specific SKU includes:

- Series 2
- LED light engine producing c.30,000 lumen with a nominal 4000K colour temperature
- A symmetrical light distribution
- Metallic Silver (RAL9006)



PERFORMANCE

Drive Current from Driver:	700mA
Power:	286W
Fitting Current:	1.28A
Power Factor:	0.98
Fitting Inrush:	13A - 1.32ms
Number of Drivers:	1
1x Driver 1 Inrush:	13A - 1.32ms
Max Drivers per 16A Type B MCB:	7
Max Fittings per 16A Type B MCB:	7
Total Number of LEDs:	30
Minimum Dim Level:	7 %
Optical Risk Group:	1



12.2Kg₂

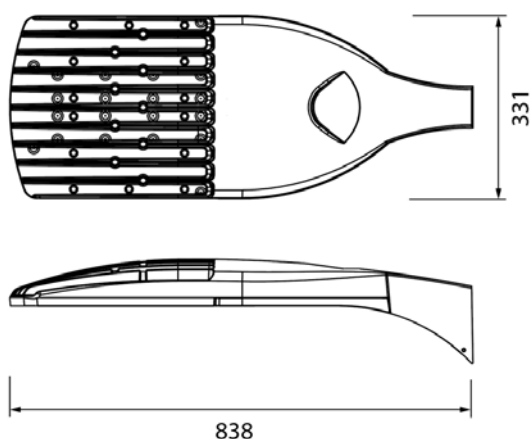


0.09M



[Installation Guide](#)

DIMENSIONS



CIBSE TM66 - CEAM RATING

2.3*

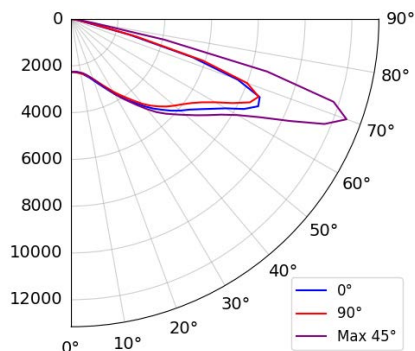
0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

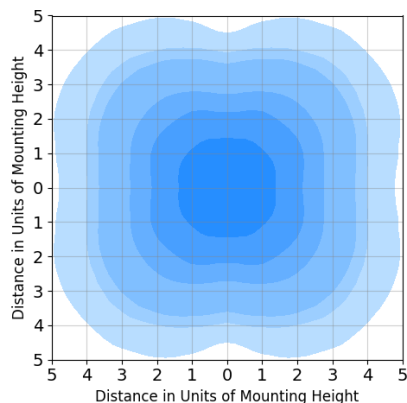
PHOTOMETRY



Polar Plot

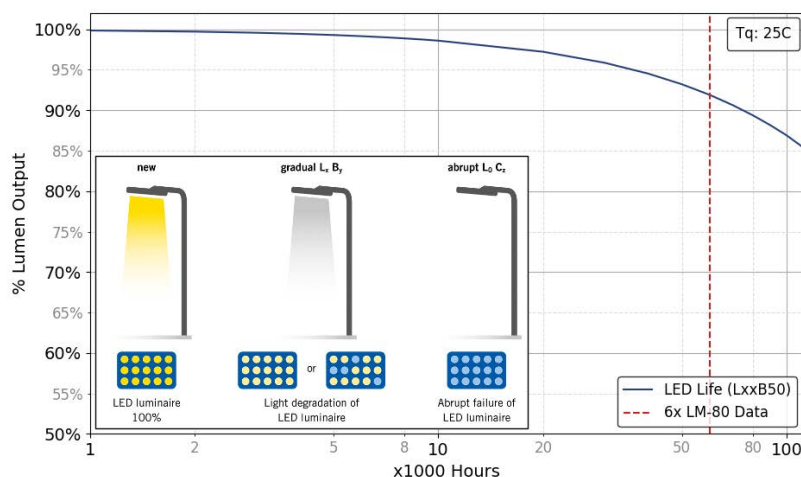


Isoilluminance Plot



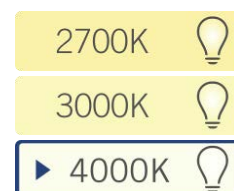
Lumens:	31,490
CCT:	4000K
CRI:	70
IES File:	DSX1.2.LA304.SY
G-Class:	G*4 Imax @ ≥ 70°: 398 Imax @ ≥ 80°: 32 Imax @ ≥ 90°: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Selected Colour

	C9	Metallic Silver (RAL9006)
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Custom Colour Available

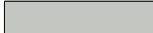
	RAL****	Customer specified colour
--	----------------	---------------------------

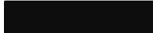
*Choosing a custom colour may increase the cost and lead time.

Standard Colours Available

	C1	Smooth White (RAL9016)
---	-----------	------------------------

	C4	Smooth Graphite (RAL7011)
---	-----------	---------------------------

	C6	Smooth Grey (RAL7035)
---	-----------	-----------------------

	C7	Textured Black (RAL9005)
---	-----------	--------------------------

	C9	Metallic Silver (RAL9006)
---	-----------	---------------------------

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

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> DATASHEET - ROADWAY - VMXII

VMXII.1.LA074.V2.X2L2.W046



Product image may not represent the final configuration stated above.



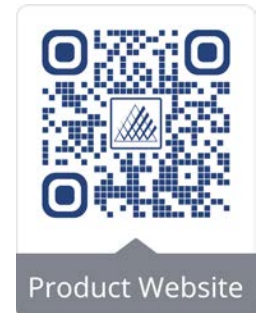
The information, data and specifications displayed on this Datasheet are from a partial product configuration. Therefore data may differ from final product supplied.

PRODUCT SPECIFICATION



VMXII HOLOPHANE WEBSITE

Holophane V-Max is a state of the art road lighting luminaire. Ultra-low profile design combined with a patented modular chevron light engine concept built in system sizes. High pressure die-cast marine grade LM6 aluminium body, spigot adaptor and chevrons (EN 1706 AC-44100). Extruded 6063-T6 Aluminium spine. Finished with a TGIC-free polyester powder coating. The luminaire shall be sealed to IP69 (IP66 with NEMA or ZD4i socket) and rated to IK07. Suitable for either Post-top or Side-entry mounting with ability to adjust on-site by -10° to +10° tilt in 2.5° increments. Hinged canopy design with integrated locked service position allowing fast and safe installation and maintenance. The canopy has provision for the inclusion of an anti-fall device. CIBSE TM66 (CEAM) Rating: 2.8 - Excellent Circularity. If not supplied with factory fitted flying lead, only use flex cable diameter from 6mm to 13mm. International Dark-Sky Association Approved (colour temperatures 3000K or warmer are approved under the IDA).



This specific SKU includes:

- Series 1
- LED light engine producing c.7,000 lm with a nominal 4000K colour temperature
- 2 LED chevrons
- X2L2 optical setting
- 46W

PERFORMANCE

Drive Current from Driver:	458mA
Power:	46W
Fitting Current:	0.21A
Power Factor:	0.97
Fitting Inrush:	46A - 250ms
Number of Drivers:	1
1x Driver 1 Inrush:	46A - 250ms
Max Drivers per 16A Type B MCB:	11
Max Fittings per 16A Type B MCB:	11
Total Number of LEDs:	16
Minimum Dim Level:	12 %
Optical Risk Group:	1



7.8Kg₂



0.033M



UMSUG

42 0046 0000 100*

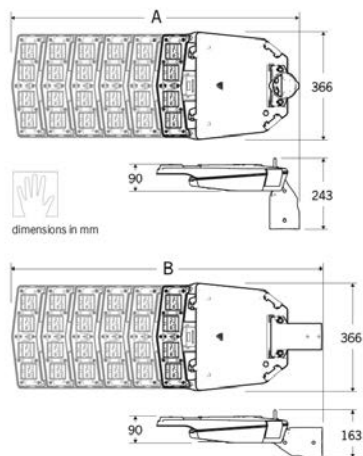


[Installation Guide](#)

*Generic UMSUG code based on product wattage and some or all of product family being included within Elexon data base.

DIMENSIONS

Configuration	A	B
V-Max 1 Chevron	498	578
V-Max 2 Chevron	599	679
V-Max 3 Chevron	700	780
V-Max 4 Chevron	801	881
V-Max 5 Chevron	902	982
V-Max 6 Chevron	1003	1083



CIBSE TM66 - CEAM RATING

2.8*

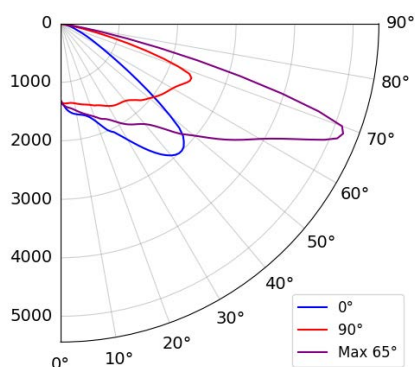
0 to 0.5	0.5 to 1.5	1.5 to 2.5	2.5 to 4.0
Very poor circular economy performance	Some circular economy functionality	Definite/substantial progress to circularity	Excellent circularity

*Preliminary Rating

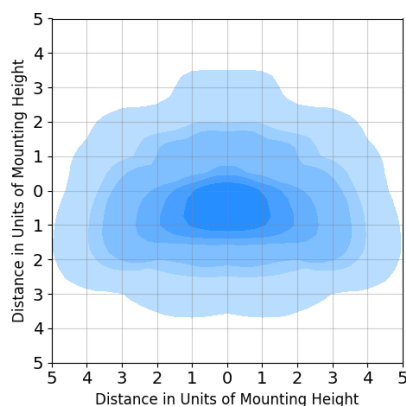
PHOTOMETRY



Polar Plot

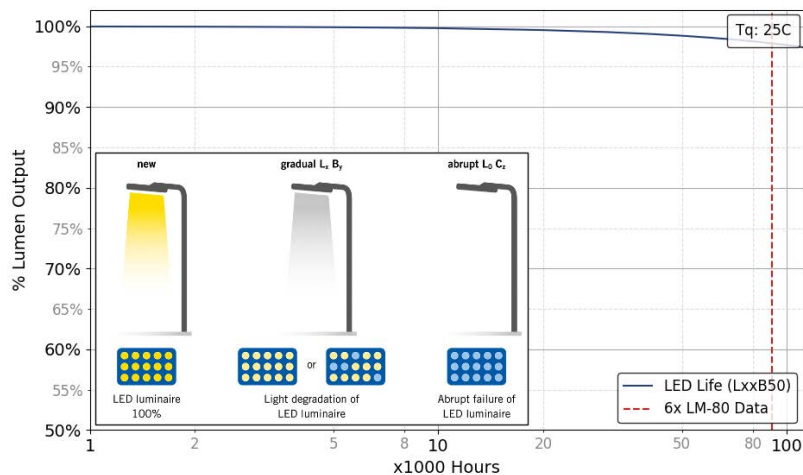


Isoilluminance Plot



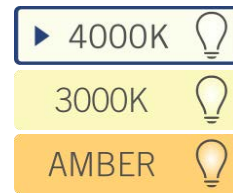
Lumens:	6,987
CCT:	4000K
CRI:	70
IES File:	VMXII.1.LA074.V2.X2L2.W046 (TZ)
G-Class:	G*3 Imax @ $\geq 70^\circ$: 733 Imax @ $\geq 80^\circ$: 55 Imax @ $\geq 90^\circ$: 0

LLMF GRAPH



For reference purposes, the graph extrapolates beyond the recommend 6x LM-80 data in TM-21, which our calculations are based on.

COLOUR TEMPERATURES



COLOURS

Standard Colours Available

	C1	Smooth White (RAL9016)
	C3	Green (RAL6013)
	C4	Smooth Graphite (RAL7011)
	C6	Smooth Grey (RAL7035)
	C7	Textured Black (RAL9005)
	C9	Metallic Silver (RAL9006)

Custom Colour Available

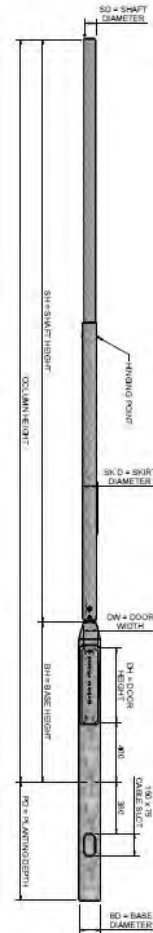
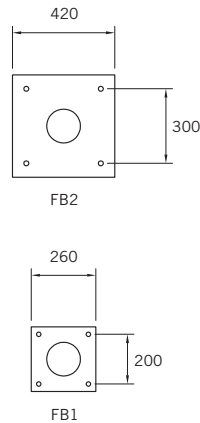
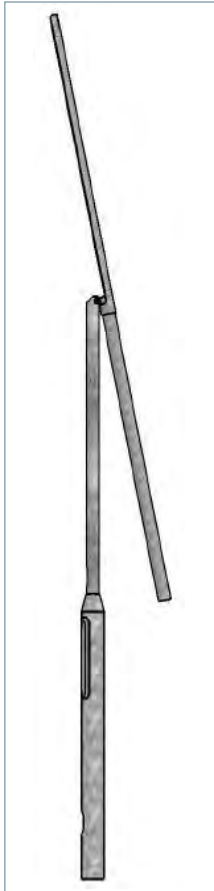
	RAL****	Customer specified colour
--	----------------	---------------------------

*Choosing a custom colour may increase the cost and lead time.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue, Datasheets and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

COLO301 - 8M MID-HINGED TUBULAR



Planted Root Option

Column Height	Physical Sizes (mm) -See Elevation for Abbreviations							Loads & Foundation			
	BD	SK D	SD	PD	BH	SH	DH x DW	Mass (kg)	OTM (kNm)	Shear (kN)	Min. Concrete Dia.
4m	139.7	88.9	76.1	800	1075	2925	500 x 100	45	3.8	1.48	458
5m	139.7	88.9	76.1	800	1075	3925	500 x 100	56	3.26	1.02	386
6m	139.7	88.9	76.1	1000	1075	4925	500 x 100	68	5.6	1.36	340
8m	168.3	101.6	88.9	1200	1200	6800	600 x 115	116	7.6	1.7	265
10m	168.3	127	114.3	1500	1200	8800	600 x 115	184	12.28	2.02	219
12m	193.7	152.4	139.7	1700	1200	10800	600 x 115	255	20.28	3.5	248

4-6m Poles	Flange Plate FB1	Bolts	M18 x 400
8m Poles	Flange Plate FB2	Bolts	M24 x 820

Flange Plate and Anchor Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and Anchor Bolts are supplied.

Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

Flange Plated Option												
	Physical Sizes (mm) -See Elevation for Abbreviations								Loads & Foundation			
Column Height	BD	SK D	SD	BH	SH	DH x DW	SL x T x BC	Anchor Bolts	Mass (kg)	OTM (kNm)	Shear (kN)	Conc. Found. Sizes
4m	139.7	88.9	76.1	1075	2925	500 x 100	260 x 15 x 200	M18 X 400	42	3.8	1.48	400 sq x 600 h
5m	139.7	88.9	76.1	1075	3925	500 x 100	260 x 15 x 200	M18 X 400	50	3.26	1.02	400 sq x 500 h
6m	139.7	88.9	76.1	1075	4925	500 x 100	260 x 15 x 200	M18 X 400	65	5.6	1.36	400 sq x 700 h
8m	168.3	101.6	88.9	1200	6590	600 x 115	420 x 20 x 300	M24 X 820	124.6	7.61	1.7	400 sq x 800 h
10m	168.3	127	114.3	1200	8630	600 x 115	420 x 20 x 300	M24 X 820	185	12.29	2.02	500 sq x 1000 h
12m	193.7	152.4	139.7	1200	10645	600 x 115	420 x 20 x 300	M24 X 820	251	20.35	3.6	600 sq x 1200 h

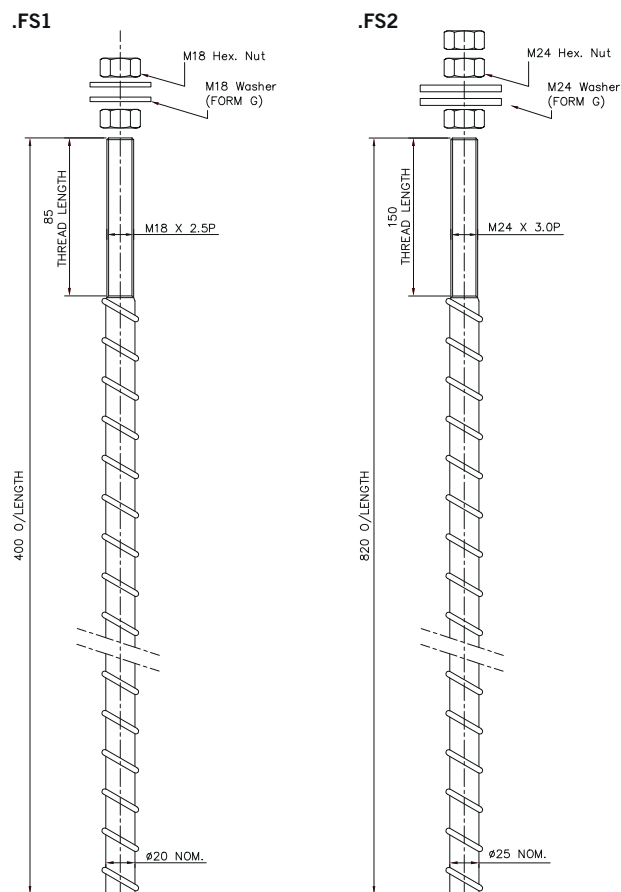
Column Height	Mounting Arrangement	Projection (m)	Max Headweight (kg)	Max Effective Windage Area, Based on T CAT III (Upto 7m) and T CAT II (8m and Above)				
				Extra Light (m ²)	Light (m ²)	Medium (m ²)	Heavy (m ²)	Ex Heavy (m ²)
4m	Post Top	N/A	20	0.7	0.59	0.53	0.47	0.35
	Single Arm	0.5	20	0.41	0.35	0.3	0.26	0.18
	Double Arm	0.5	20	0.27	0.22	0.19	0.16	0.11
5m	Post Top	N/A	20	0.42	0.36	0.32	0.27	0.19
	Single Arm	0.5	20	0.26	0.21	0.18	0.15	0.08
	Double Arm	0.5	20	0.15	0.11	0.09	0.07	0.03
6m	Post Top	N/A	20	0.66	0.55	0.49	0.43	0.31
	Single Arm	0.5	20	0.41	0.34	0.3	0.26	0.16
	Double Arm	0.5	20	0.25	0.2	0.17	0.14	0.08
8m	Post Top	N/A	20	0.44	0.35	0.3	0.25	0.15
	Single Arm	0.5	15	0.33	0.25	0.2	0.17	0.08
	Double Arm	0.5	15	0.15	0.1	0.08	0.06	0.01
10m	Post Top	N/A	20	0.48	0.39	0.34	0.29	0.2
	Single Arm	0.5	15	0.38	0.3	0.26	0.21	0.13
	Double Arm	0.5	15	0.17	0.13	0.1	0.08	0.04
12m	Post Top	N/A	15	0.67	0.56	0.51	0.45	0.37
	Single Arm	0.5	15	0.51	0.42	0.38	0.33	0.25
	Double Arm	0.5	15	0.24	0.19	0.16	0.14	0.1

For columns supplied with optional flange base Holophane offers two types of foundation bolts.

Note: The material used for the bolts is Fe E500 grade steel, with yield strength 500 N/mm² and minimum UTS 550 N/mm².

HEL.FS1 M18 Bolts (FS1) x 400 mm long

HEL.FS2 M24 Bolts (FS2) x 820 mm long

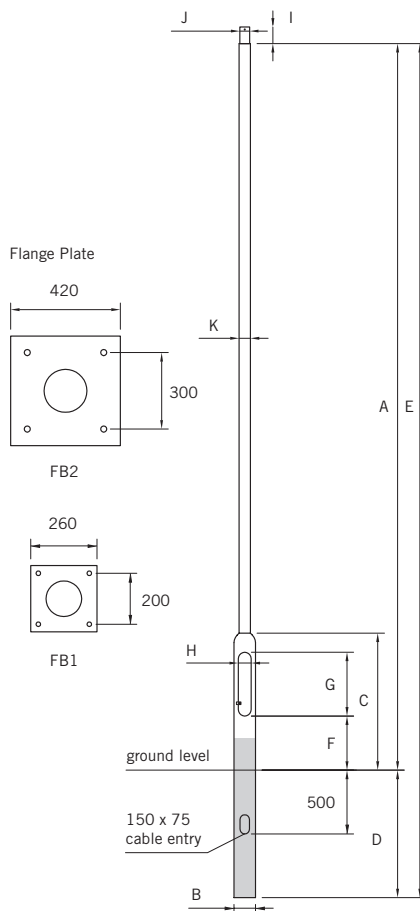


VMXB.8.1S.LMZ.SA60.GV9



Holophane products that are suitable

CityMax
Denver Elite pole
D-Series
Factor
Factor small
V-Max



	Nominal Height	Base Diameter*	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg*	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
2.5m standard duty	2500	140	1075	800	3300	400	500	100	-	-	76	27	2100
3m standard duty	3000	140	1075	800	3800	400	500	100	-	-	76	30	4666
3.5m standard duty	3500	140	1075	800	4300	400	500	100	-	-	76	32	2100
4m standard duty	4000	140	1075	800	4800	400	500	100	-	-	76	34	6484
4.5m standard duty	4500	140	1075	800	5300	400	500	100	-	-	76	37	5108
5m standard duty	5000	140	1075	800	5800	400	500	100	-	-	76	39	6149
5.5m standard duty	5500	140	1075	1000	6500	400	500	100	-	-	76	44	6003
6m standard duty	6000	140	1075	1000	7000	400	500	100	-	-	76	46	5999
6m heavy duty	5700	168	1200	1000	6700	400	600	115	130	76	89	71	10404
8m standard duty	7700	168	1200	1200	8900	400	600	115	130	76	89	89	10072
8m heavy duty	7700	168	1300	1200	9000	500	600	115	250	101	114	107	15699
8m extra heavy duty	7700	194	1300	1200	9000	500	600	115	250	127	140	136	18973
10m standard duty	9700	168	1300	1500	11200	500	600	115	250	101	114	150	18067
10m heavy duty	9700	194	1300	1500	11200	500	600	115	250	127	140	168	23193
10m extra heavy duty	9700	194	1300	1500	11200	500	600	115	250	152	168	220	28317
12m standard duty	11700	194	1300	1700	13400	500	600	115	250	127	140	213	26251
12m heavy duty	11700	194	1300	1700	13400	500	600	115	250	127	168	260	40390

* Exclusion TBC

2.5-6m std Poles **Flange Plate FB1** Bolts M18 x 400

8-12m std Poles **Flange Plate FB2** Bolts M24 x 820

Flange Plate and Anchor Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and Anchor Bolts are supplied.

Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

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E info@holophane.co.uk

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Bond Avenue, Milton Keynes
Buckinghamshire MK1 1JG
United Kingdom



F +44 (0)1908 367 618

618

stepped steel - CityMax Large only post top

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
6m	6000	140	1075	1000	7000	400	500	115	-	-	-	46	5999
8m	7700	168	1300	1200	9000	500	600	115	100	76	114	107	15699
10m	9700	168	1300	1500	11200	500	600	115	100	76	114	150	18067
12m	11700	194	1300	1700	13400	500	600	115	100	76	140	168	26251
15m	14700	194	1200	2000	17000	400	600	115	100	76	168	306	40300

twin head

	Nominal Height	Base Diameter	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length	Spigot Diameter	Shaft Diameter	Weight kg	Bending Moment (ULS) Nm
description	A	B	C	D	E	F	G	H	I	J	K		
8m	7400	194	1200	1200	8800	400	600	115	200	127	139.7	125	22610
10m	9400	194	1200	1500	11100	400	600	115	200	152.4	168.3	208	39131
12m	11400	194	2500	1700	13300	1000	600	115	200	152.4	168.3	295	41585

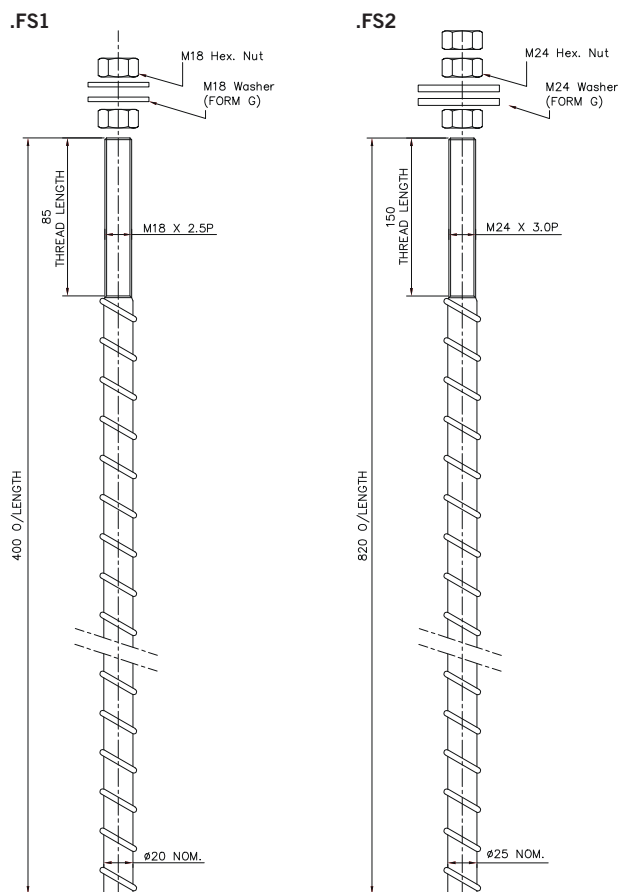
Note: For Terrain Category 2 locations LMZ, HVZ & HEZ

For columns supplied with optional flange base Holophane offers two types of foundation bolts.

Note: The material used for the bolts is Fe E500 grade steel, with yield strength 500 N/mm2 and minimum UTS 550 N/mm2.

HEL.FS1 M18 Bolts (FS1) x 400 mm long

HEL.FS2 M24 Bolts (FS2) x 820 mm long



CONTROLUX AIR GATEWAY

The Controlux Gateway is a state-of-the-art network interface device which synchronizes Controlux outdoor lighting controllers and the lighting management software (CityManager or similar third-party software).

The Gateway has an in-built radio module for wireless network configuration, commissioning, and maintenance. It can reliably communicate with a large number of devices spread across large distances. In-built smart monitoring tools notify users about the status of the luminaires and the network (via CityManager or other software).

Several Internet connectivity options offer robustness and flexibility to the end-customer. Furthermore, it supports the industry-standard protocols allowing for an easy integration with other systems and networks.

The Gateway encloses advanced industrial components for optimized performance worldwide.

specifications

hardware

integrated product

- In-built power supply, 2.4 GHz wireless network communication, server communication (SIM-card, Ethernet, Wi-Fi). SIM-card provided by Twilight with worldwide coverage, or by customer himself (requires 1GB monthly data subscription)

input voltage

- Universal 85 – 264 VAC, 50/60 Hz

power consumption

- <8W (average)

processor

- High-performance industrial grade dual-core ARM Cortex-A9 CPU, 1 GHz

data storage

- Micro SD-card

real-time clock

- Battery-backed RTC

electrical protection

- Class II: overload, short circuit, and overtemperature protection

electrical safety

- Galvanic isolation between high-voltage and low-voltage terminals

operating conditions

- -20 °C to +60 °C, 20% to 90%, Rh non-condensing

antenna

- Integrated internally for 2.4 GHz wireless and Wi-Fi

connectors

- 1x Ethernet port (10/100, RJ45)
- 1x USB 2.0 connector (high speed)
- 1x micro SD-card slot (max. 32 GB)
- 1x push insert for a standard SIM-card bay (25 mm x 15 mm)
- 2-pin power connector
- 2x uFL antenna connector (2.4 GHz wireless, Wi-Fi)
- 1x SMA-F antenna connector (2G/3G modem)

product mounting options

- Pole mounting, wall mounting, or inside the cabinet

housing

- IP65, fireproof (UL94V0) housing

dimension

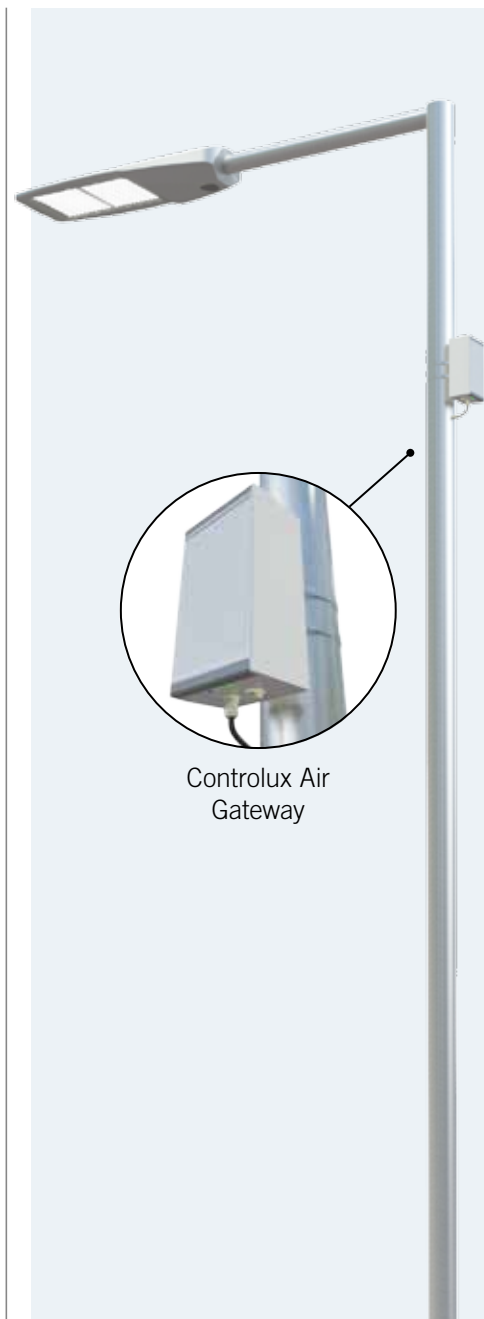
- 230 mm x 130 mm x 90 mm

manufacturing

- ISO 9001: 2008, Made in Europe

certification

- RoHS, CE, EN301489-1/3, EN61547, EN55015, EN300328, EN60950
- RF Transceiver compliant with US (FCC), Canadian (IC), European (ETSI), and Japanese (Telec) standards



Controlux Air
Gateway

specifications (continued)

internet communication

server communication

- 2G GSM/ GPRS/ EDGE quad-band,
- 3G six-band UMTS/ HSPA
- Additional Ports: Ethernet and WiFi

network security

- 128 AES, WebSocket (with SSL) and VPN
- Multilayer security with end-to-end encryption
- Dual protection for messages between devices and Gateway
- Certificate-based secure WebSocket and VPN connection

functions

- Real-time monitoring of devices and network
- Several Internet connectivity options (Ethernet, Wi-Fi and GSM) and automatic connectivity selection
- Automatic recovery for mobile connection
- SNTP time-sync between Gateway and devices
- Regular logging of the system operation (selectable time interval)
- Real-time connection between Gateway and DigiHub
- Remote debugging of Gateway and devices
- Over-the-air update for Gateway and devices (software and firmware)
- Local intelligence for reliability and faster response time

over-the-air update

- Configurations and software can be updated remotely, ensuring an up-to-date network infrastructure

remote monitoring

- CityManager (or third-party software) enables remote management, monitoring, control, and configuration of luminaires on individual and group level.

wireless communication

wireless network

- 2.4 GHz IEEE 802.15.4
- Self-forming, self-healing, user-configurable wireless network
- +10 dBm max. receiver sensitivity
- Up to 1 km open field range
- Up to 250 kbps RF data rate

device to gateway ratio

- 200:1

product compatibility

- Plug-and-play compatibility with Controlux Air enabled luminaires and motion sensors

Model X (External Wireless Motion Sensor)



EXTERNAL WIRELESS MOTION SENSOR

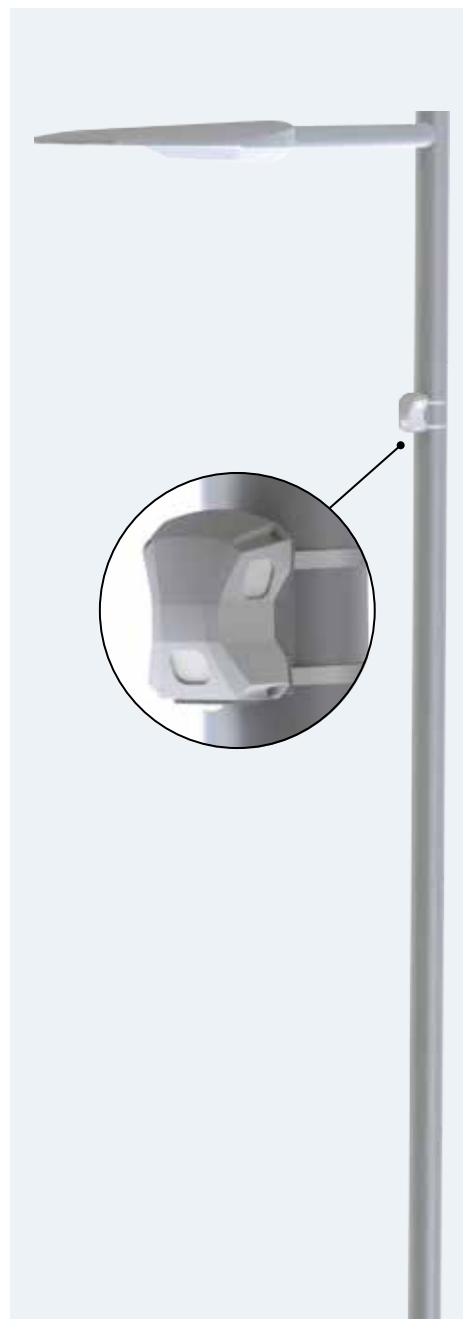
The Controlux Air standalone motion sensor is a revolutionary integrated wireless motion sensor for the presence-based monitoring and control of outdoor lighting. The product is compatible with both conventional and new luminaires (such as LED).

The motion sensor delivers on-demand dynamic lighting, making the lights adjust their brightness based on the presence of pedestrians, bicycles, and cars. As a result, the lights automatically dim down during the off-peak hours when there is nobody in the vicinity. Upon detection of the human presence, all lights in the surrounding area return to the brightness levels previously defined by the user. Dynamic lighting reduces energy consumption by up to 80% without compromising public safety and citizen comfort.

The in-built monitoring tools notify users (via CityManager) about the lighting-related faults such as a luminaire or driver failure. This greatly reduces the need for expensive visual inspections and enables a reduction of operation and maintenance costs.

features

- Revolutionary outdoor motion sensor with an in-built wireless lighting controller
- On-demand dynamic lighting thanks to advanced human detection technology
- Heatmaps to track occupancy levels and traffic intensity in the area
- Plug-and-play installation
- Universal lamp compatibility
- Energy Monitoring
- In-built real-time clock with a back-up battery, AstroClock
- Fully controllable through Controlux Air CityManager
- Open interfaces for third-party compatibility
- Fail-proof: three-level back-up system



specifications

Product

- Motion detection sensors, wireless communication, and lighting control integrated into one product for a simple plug-and-play installation. Includes a 5,5 m pre-connected power and control cable.

Motion detection

- Detects pedestrians, cyclists, and cars (range: 4-120 km/h)
- Range: up to 15 m on each side, 9 m in front, 3 m behind
- Angle: >270° (depends on pole diameter)
- Triggering of 1-10 neighboring lamps upon detection (user-configurable)

Input voltage

- 230 VAC (PR150868) or 115 VAC (PR151116), 50/60 Hz (normal power grid)

Power consumption

- <3W

DALI loads

- Max.3

Dimming control

- 1-10 V or DALI (isolated for safety)

Surge protection

- 110 joules (6 Ka), 12 kV combination wave

Controller

- ARM Cortex-M3 CPU

Electrical protection

- Class II: overload, short circuit, and overtemperature protection

Electrical safety

- Galvanic isolation between high-voltage and low-voltage terminals

Operating conditions

- -20 °C to +70 °C ambient, 20% to 90%, Rh non-condensing

Product mounting

- On the pole. Recommended mounting height 5 m above the ground

Housing

- IP65, weatherproof and fireproof

Antenna

- Integrated Internally

Dimensions

- 100 mm x 125 mm x 95 mm
- ± 10° adjustable mounting plate to accommodate for pole tilts

Product compatibility

- Direct wireless communication with Controlux Air node and Gateway, communication with CityManager—through Gateway
- Compatibility with conventional (PLL, HID, HPS) and new (LED) luminaires

wireless communication

- 2.4 GHz IEEE 802.15.4 self-forming, self-healing wireless network
- +10 dBm max. transmit power, -98 dBm max. receiver sensitivity
- Up to 1 km open field range
- Up to 250 kbps microcontroller RF data rate
- 32-bit microcontroller, 64 kB Flash and 16 kB RAM

network security

- 128 AES
- Multi-layer security with end-to-end encryption

over-the-air update

- Configurations and software can be updated remotely, ensuring an up-to-date network infrastructure

server communication

- via Gateway

device to gateway ratio

- 200:1

remote monitoring

- Via CityManager or similar third-party management software. CityManager enables remote management, monitoring, control, and configuration of lamps on individual and group level.

safety mode

- Auto-safe: in a case of Gateway failure, all lamps go back to the highest pre-programmed level of brightness. In a case of the controller failure, the lamp goes back to the 100% brightness.

certification

- RoHS, CE, EN301489-1/3, EN61547, EN55015, EN300328, EN60950, EN550121-5
- RF transceiver compliant with US (FCC), Canadian (IC), European (ETSI), and Japanese (Telec) standards

manufacturing

- ISO 9001:2008, Made in Europe

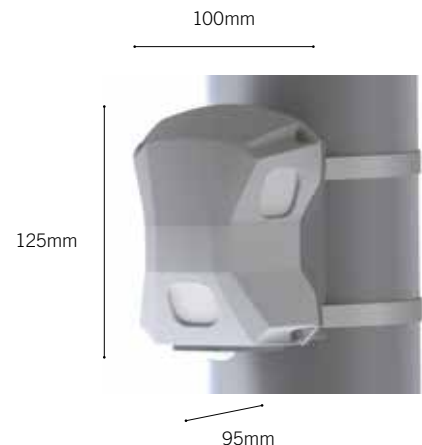
lamp switching capacity

- 2400 VA (Relay), 16A max. current

astroclock

- Battery-backed real-time clock; AstroClock feature
- Able to switch on/off the lamps at sunset/sunrise and adjust them seasonally (Summer-Winter time).
- Eliminates the need for conventional photocell

External Wireless Motion Sensor



UNIVERSAL INTERFACE DEVICE

The Universal Interface Device enables the user to use a switch as an override device.

The Universal Interface Device supports seamless communication with other Controlux devices/products, such as Motion Sensor and Gateway, and can be managed remotely via Controlux Air CityManager.

The CTA.UID can fit into several user applications where an override of a standard lighting profile is desired, such as emergency conditions or a temporary change of the lighting levels.

The override switch (**supplied by others**) can be installed remotely as far as there is a valid and safe electrical connection to the CTA.UID.

features

- Override commands issued via the Controlux Air wireless network
- Remote management and control via CityManager and third-party software
- Advanced dimming and adaptive lighting schedules
- Able to interface with third party systems
- Automatic failure and status reports via CityManager
- Plug-and-play installation



specifications

product

- In-built wireless communication, lighting control, and external sensor interface
- Model B: 5.5 m pre-connected power cable for ease of installation

input voltage

- 230 VAC (Model A PR151083 - Model B PR161195) or
- 115 VAC (Model A PR151115 - Model B PR161196), 50/60 Hz (normal power grid)

wireless control

- Remote on/off/dimming
- Grouped Scheduling

power consumption

- <2W

surge protection

- 110 joules (6 Ka)
- 12 kV combination wave

controller

- ARM Cortex-M3 CPU

electrical safety

- Galvanic isolation between high-voltage and low-voltage terminals

operating conditions

- -20 °C to +70 °C ambient
- 20% to 90%, Rh non-condensing

housing

- IP65

antenna

- External antenna

dimensions

- 230mm x 130 mm x 90 mm

product compatibility

- Direct wireless communication with Controlux Air and Gateway, communication with CityManager—through Gateway

external sensor integration

- I²C interface to connect third-party external sensors

wireless communication

- 2.4 GHz IEEE 802.15.4 self-forming, self-healing wireless network
- +10 dBm max. transmit power, -98 dBm max. receiver sensitivity
- Up to 1 km open field range
- Up to 250 kbps microcontroller RF data rate
- 32-bit microcontroller, 64 kB Flash and 16 kB RAM

network security

- 128 AES
- Multi-layer security with end-to-end encryption

over-the-air update

- Configurations and software can be updated remotely, ensuring an up-to-date network infrastructure

device to gateway ratio remote monitoring

- 200:1

safety mode

- Via CityManager or similar third-party management software. CityManager enables remote management, monitoring, control, and configuration of lamps on individual and group level.

certification

- Auto-safe: in a case of Gateway failure, all lamps go back to the highest pre-programmed level of brightness. In a case of the controller failure, the lamp goes back to the 100% brightness.
- RoHS, CE, EN301489-1/3, EN61547, EN55015, EN300328, EN60950, EN550121-5
- RF transceiver compliant with US (FCC), Canadian (IC), European (ETSI), and Japanese (Telec) standards

manufacturing

- ISO 9001:2008, Made in Europe



Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturer's data) and luminaire power of +/- 5%.

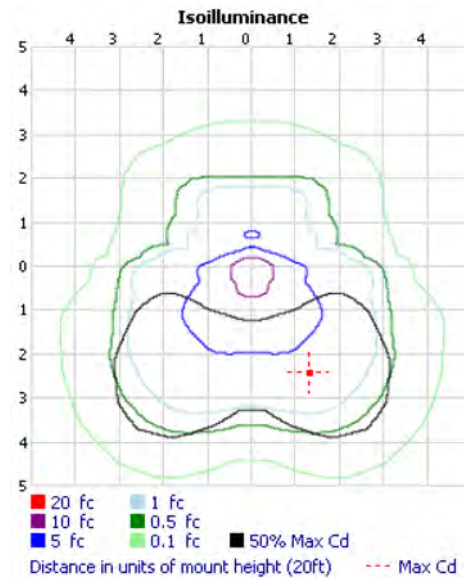
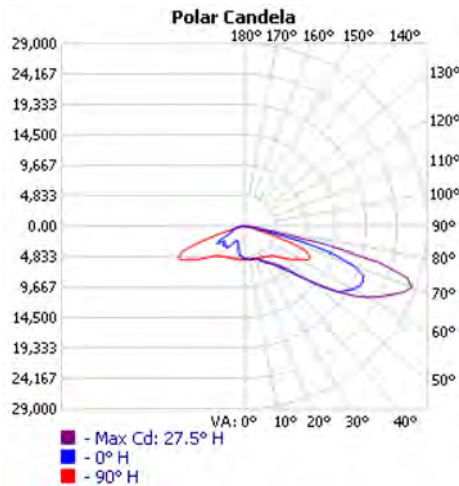
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UTDO R PH TO TR C R PORT

CATALOG: DSX2.2.LA364.FW

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 34057P17
Test Lab: ACUITY BRANDS LIGHTING - CONYERS L B - SC LED PHOTOMETRY
Test Date: 3/21/2017
Catalog: DSX2.2.LA364.FW
Description: D-Series 2 Luminaire
Lamp Catalog: LA364
Lamp: LED C,36000LM-4000K
Lamp Output: Total luminaire Lumens: 40788.8, absolute photometry *
Input Wattage: 328
Luminous Opening: Rectangle (L: 18", W: 12.96")
Max Cd: 28,265.5 at Horizontal: 27.5°, Vertical: 70°
Roadway Class: SHORT, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment and application (including, but not limited to, voltage variation and dirt accumulation) can cause actual Photometric performance to differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

ISF 34057P17
VISUAL PHOTOMETRI TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	4,007.7	9.8%
0-40	7,209.7	17.7%
0-60	20,372.9	49.9%
60-90	20,415.9	50.1%
70-100	8,552.3	21%
90-120	0.000	0%
0-90	40,788.8	100%
90-180	0.000	0%
0-180	40,788.8	100%

Lumens Per Zone

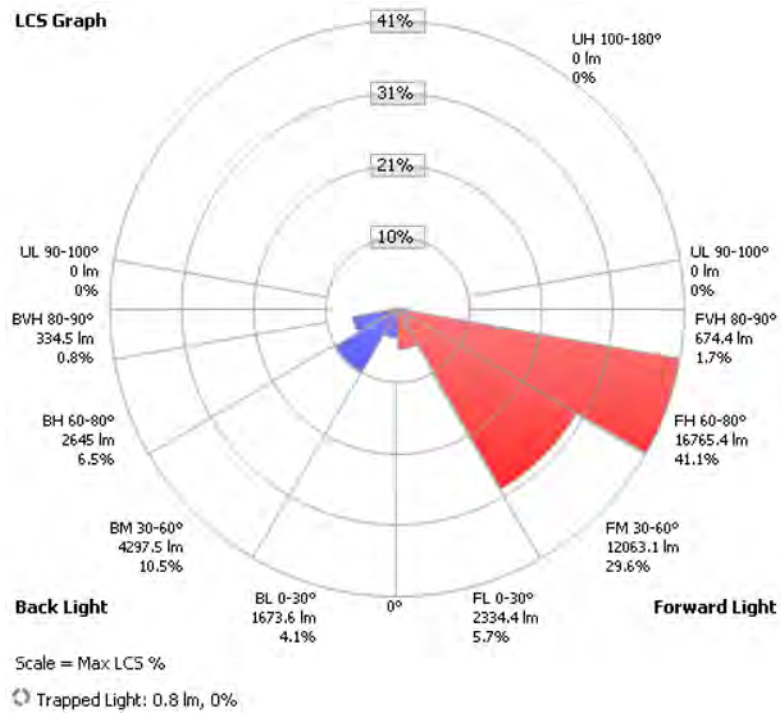
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	485.3	1.2%	90-100	0.000	0%
10-20	1,370.5	3.4%	100-110	0.000	0%
20-30	2,151.9	5.3%	110-120	0.000	0%
30-40	3,201.9	7.9%	120-130	0.000	0%
40-50	4,816.3	11.8%	130-140	0.000	0%
50-60	8,346.9	20.5%	140-150	0.000	0%
60-70	11,863.6	29.1%	150-160	0.000	0%
70-80	7,541.9	18.5%	160-170	0.000	0%
80-90	1,010.4	2.5%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, SHORT	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	4,828.8	
	Lumens	% Lamp
Downward Street Side:	31,837.4	78.1%
Downward House Side:	8,950.6	21.9%
Downward Total:	40,788.0	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	40,788.0	100%

LCS Table

BUG Rating	B4 - U0 - G5	
Forward Light	Lumens	Lumens %
Low(0-30):	2,334.4	5.7%
Medium(30-60):	12,063.1	29.6%
High(60-80):	16,765.4	41.1%
Very High(80-90):	674.4	1.7%
Back Light	Lumens	Lumens %
Low(0-30):	1,673.6	4.1%
Medium(30-60):	4,297.5	10.5%
High(60-80):	2,645.0	6.5%
Very High(80-90):	334.5	0.8%
Uplight	Lumens	Lumens %
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.8	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191	5191
5	5215	5244	5230	5211	5191	5186	5199	5222	5229	5234	5223	5100	4966	4913	4873	4832	4812	4800	4788
10	5374	5402	5381	5332	5275	5223	5182	5206	5271	5290	5067	4908	4769	4681	4650	4650	4650	4640	4611
15	5280	5335	5368	5332	5344	5295	5232	5220	5299	5371	5050	4822	4671	4544	4233	3916	3715	3607	3580
20	5393	5383	5381	5450	5464	5481	5364	5299	5345	5419	4993	4753	4287	3638	3171	2907	2802	2775	2758
25	5997	5927	5803	5656	5666	5721	5652	5443	5421	5471	4975	4438	3477	2931	2653	2613	2656	2684	2672
30	6555	6543	6445	6304	6001	5939	5949	5615	5546	5618	4993	3804	3022	2704	2699	2591	2571	2629	2625
35	7176	7152	7084	6970	6679	6239	6030	5831	5779	5896	4794	3271	2914	2687	2601	3044	3528	3858	3859
40	8395	8069	7926	7677	7389	6835	6425	6148	6006	6152	4184	2982	2785	2469	2713	3247	3926	4365	4367
45	10128	10052	9788	9326	8885	8269	7451	6872	6572	6634	3638	2780	2636	2344	2649	3329	4033	4462	4474
50	13465	13774	13707	12475	11089	10001	8954	7833	7736	7703	3096	2687	2444	2409	3044	4082	4431	4262	4190
55	18143	18925	18455	16911	15361	13494	11488	9410	9503	9148	2673	2679	2413	2758	3607	4156	4309	4331	4271
60	19905	21661	22901	21141	19873	18333	15022	11705	11899	10515	2409	2881	2550	3217	4516	5299	5277	4784	4482
65	20750	23713	25781	24559	23976	23794	19058	13608	13965	11518	2111	2564	2612	3562	4781	3466	2500	2306	2257
70	18653	23639	28017	27260	26519	24605	17633	10955	10097	7971	1917	1977	2272	3391	2608	2178	2179	2085	2042
75	9316	14630	20954	22409	19771	15509	7729	4923	2329	1826	1414	1416	2059	2069	1675	1670	1611	1541	1500
80	1455	2196	3835	4829	3945	3900	3682	3290	1563	1035	1048	1129	1701	1270	1239	1162	1033	927	909
85	407	621	841	1047	1393	1404	1438	1555	1012	491	577	899	872	717	693	628	479	309	355
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Type B1

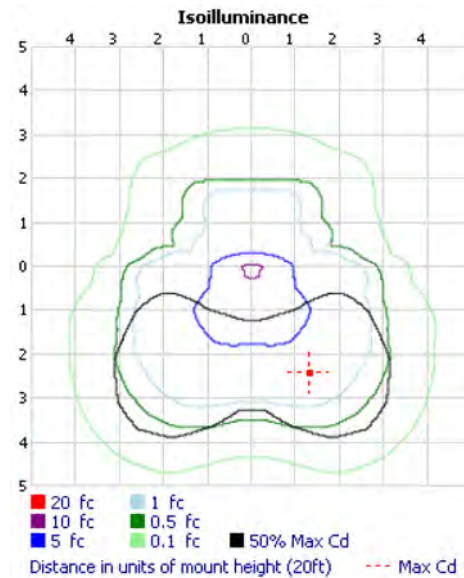
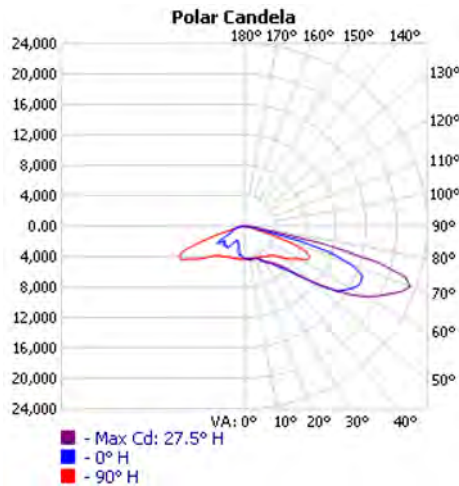


UTDO R PH TO TR C R PORT

CATALOG: DSX2.2.LA304.FW

Manufacturer: HOLOPHANE EUROPE LIMITED
 Test #: ISF 34057P11
 Test Lab: ACUITY BRANDS LIGHTING - CONYERS L B - SC LED PHOTOMETRY
 Test Date: 3/21/2017
 Catalog: DSX2.2.LA304.FW
 Description: D-Series 2 Luminaire
 Lamp Catalog: LA304
 Lamp: LED C,30000LM-4000K
 Lamp Output: Total luminaire Lumens: 33389.6, absolute photometry *
 Input Wattage: 282
 Luminous Opening: Rectangle (L: 18", W: 12.96")
 Max Cd: 23,138.0 at Horizontal: 27.5°, Vertical: 70°
 Roadway Class: SHORT, TYPE IV

No
 Photo
 Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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ISF 34057P11
 VISUAL PHOTOMETRI TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	3,280.7	9.8%
0-40	5,901.8	17.7%
0-60	16,677.2	49.9%
60-90	16,712.4	50.1%
70-100	7,000.9	21%
90-120	0.000	0%
0-90	33,389.6	100%
90-180	0.000	0%
0-180	33,389.6	100%

Lumens Per Zone

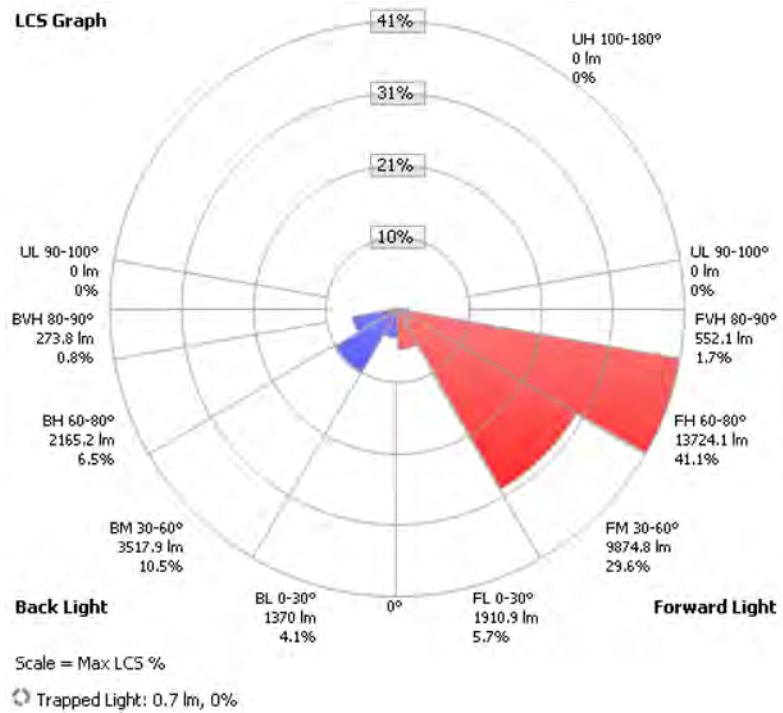
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	397.3	1.2%	90-100	0.000	0%
10-20	1,121.9	3.4%	100-110	0.000	0%
20-30	1,761.6	5.3%	110-120	0.000	0%
30-40	2,621.1	7.9%	120-130	0.000	0%
40-50	3,942.6	11.8%	130-140	0.000	0%
50-60	6,832.8	20.5%	140-150	0.000	0%
60-70	9,711.5	29.1%	150-160	0.000	0%
70-80	6,173.8	18.5%	160-170	0.000	0%
80-90	827.1	2.5%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, SHORT	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	3,952.8	
	Lumens	% Lamp
Downward Street Side:	26,061.9	78.1%
Downward House Side:	7,326.9	21.9%
Downward Total:	33,388.8	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	33,388.8	100%

LCS Table

BUG Rating	B3 - U0 - G5	
Forward Light	Lumens	Lumens %
Low(0-30):	1,910.9	5.7%
Medium(30-60):	9,874.8	29.6%
High(60-80):	13,724.1	41.1%
Very High(80-90):	552.1	1.7%
Back Light		
Low(0-30):	1,370.0	4.1%
Medium(30-60):	3,517.9	10.5%
High(60-80):	2,165.2	6.5%
Very High(80-90):	273.8	0.8%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.7	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249	4249
5	4269	4293	4281	4266	4249	4245	4256	4274	4280	4284	4276	4175	4065	4022	3989	3956	3939	3929	3919
10	4399	4422	4405	4364	4318	4276	4242	4262	4315	4331	4148	4017	3904	3832	3807	3807	3807	3798	3774
15	4322	4367	4394	4364	4374	4335	4283	4273	4338	4397	4134	3947	3824	3720	3465	3205	3041	2953	2930
20	4415	4407	4405	4461	4473	4487	4391	4338	4376	4436	4088	3891	3509	2978	2596	2380	2294	2271	2257
25	4909	4852	4751	4630	4638	4683	4627	4456	4437	4478	4072	3633	2846	2399	2172	2139	2174	2197	2187
30	5366	5356	5276	5161	4912	4862	4870	4596	4540	4599	4088	3114	2474	2214	2210	2121	2104	2152	2149
35	5874	5855	5799	5706	5467	5107	4936	4773	4731	4827	3925	2677	2385	2200	2130	2492	2888	3158	3159
40	6872	6605	6488	6285	6049	5595	5259	5033	4916	5036	3425	2441	2280	2021	2221	2658	3214	3574	3575
45	8290	8229	8012	7634	7273	6769	6099	5626	5380	5431	2978	2276	2158	1919	2169	2725	3301	3652	3662
50	11023	11275	11221	10212	9077	8187	7330	6412	6332	6306	2534	2200	2000	1972	2492	3342	3627	3489	3430
55	14852	15492	15107	13843	12575	11046	9404	7703	7779	7488	2189	2193	1975	2257	2953	3402	3527	3545	3496
60	16294	17731	18747	17306	16268	15008	12297	9581	9740	8608	1972	2358	2087	2634	3697	4338	4319	3916	3669
65	16985	19411	21104	20104	19626	19477	15600	11139	11431	9428	1728	2099	2138	2916	3913	2837	2047	1888	1847
70	15269	19351	22934	22315	21708	20142	14435	8968	8265	6525	1569	1618	1860	2776	2135	1783	1784	1707	1672
75	7626	11976	17153	18344	16185	12696	6327	4030	1906	1495	1157	1159	1686	1694	1371	1367	1319	1261	1228
80	1191	1798	3139	3953	3229	3193	3014	2693	1280	847	858	924	1392	1039	1014	951	846	759	744
85	333	508	688	857	1141	1149	1177	1273	829	402	472	736	714	587	567	514	392	253	291
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Type B1/BLS

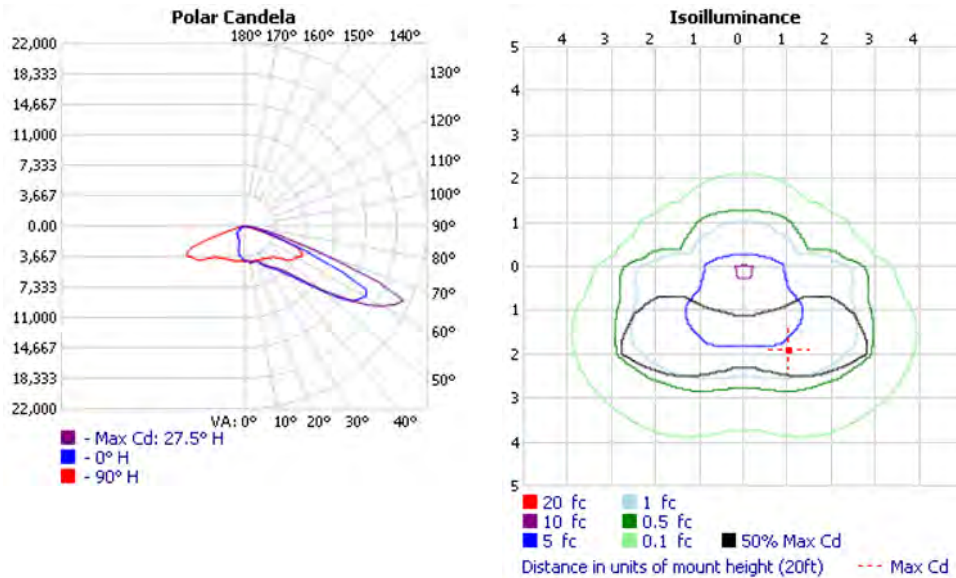


UTDO R PH TO TR C R PORT

CATALOG: DSX2.2.LA304.FW.BLS

Manufacturer: HOLOPHANE EUROPE LIMITED
 Test #: ISF 34067P11
 Test Lab: ACUITY BRANDS LIGHTING - CONYERS L B - SC LED PHOTOMETRY
 Test Date: 21 Mar 2017
 Catalog: DSX2.2.LA304.FW.BLS
 Description: D-Series 2 Luminaire with Back Light Shield
 Lamp Catalog: LA304
 Lamp: LED C,3000LM-4000K
 Lamp Output: Tot l luminaire Lumens: 26069.8, **absolute photometry ***
 Input Wattage: 282
 Luminous Opening: Rectangle (L: 18", W: 12.96")
 Max Cd: 21,154.6 at Horizontal: 27.5°, Vertical: 65°
 Roadway Class: VERY SHORT, TYPE III

No
 Photo
 Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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ISF 34067P11
 VISUAL PHOTOMETRIC TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	3,167.3	12.1%
0-40	5,600.7	21.5%
0-60	15,442.5	59.2%
60-90	10,627.2	40.8%
70-100	3,046.2	11.7%
90-120	0.000	0%
0-90	26,069.8	100%
90-180	0.000	0%
0-180	26,069.8	100%

Lumens Per Zone

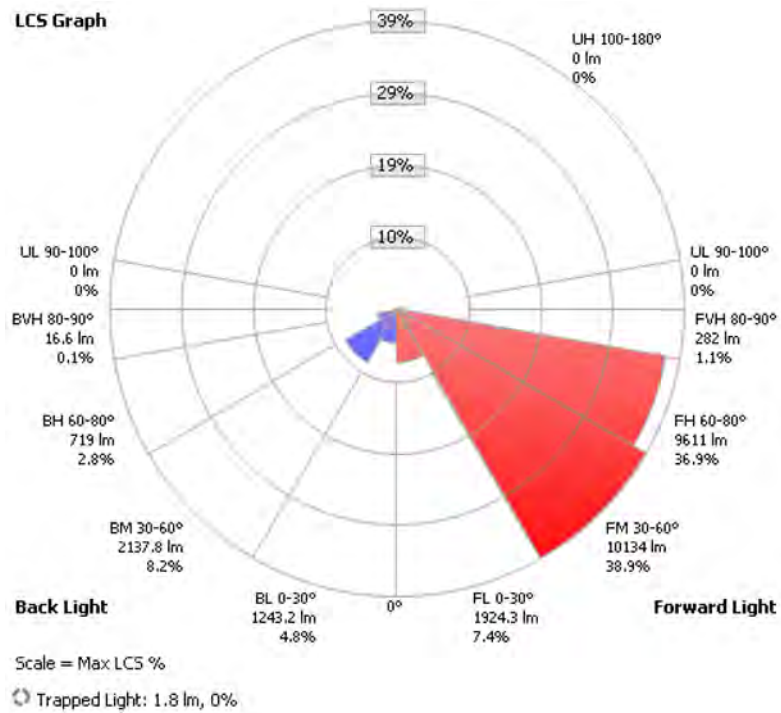
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	386.7	1.5%	90-100	0.000	0%
10-20	1,084.5	4.2%	100-110	0.000	0%
20-30	1,696.1	6.5%	110-120	0.000	0%
30-40	2,433.5	9.3%	120-130	0.000	0%
40-50	3,655.0	14.0%	130-140	0.000	0%
50-60	6,186.8	23.7%	140-150	0.000	0%
60-70	7,581.1	29.1%	150-160	0.000	0%
70-80	2,746.6	10.5%	160-170	0.000	0%
80-90	299.6	1.1%	170-180	0.000	0%

Roadway Summary

Distribution: TYPE III, VERY SHORT		
Max Cd, 90 Deg Vert:		0.000
Max Cd, 80 to <90 Deg:		2,036.8
	Lumens	% Lamp
Downward Street Side:	21,951.4	84.2%
Downward House Side:	4,116.6	15.8%
Downward Total:	26,068.0	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	26,068.0	100%

LCS Table

BUG Rating	B3 - U0 - G4	
Forward Light	Lumens	Lumens %
Low(0-30):	1,924.3	7.4%
Medium(30-60):	10,134.0	38.9%
High(60-80):	9,611.0	36.9%
Very High(80-90):	282.0	1.1%
Back Light		
Low(0-30):	1,243.2	4.8%
Medium(30-60):	2,137.8	8.2%
High(60-80):	719.0	2.8%
Very High(80-90):	16.6	0.1%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	1.8	0%



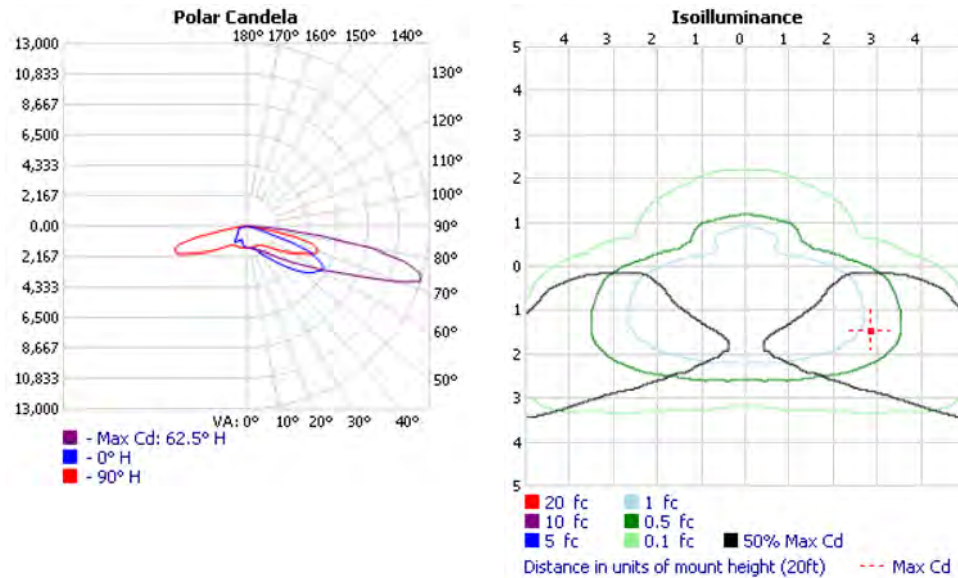
Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161	4161
5	4215	4238	4225	4210	4189	4175	4178	4190	4197	4192	4144	4006	3922	3870	3818	3777	3756	3745	3736
10	4397	4416	4388	4335	4283	4228	4186	4192	4234	4241	4001	3835	3714	3635	3597	3589	3579	3569	3554
15	4362	4399	4414	4383	4381	4312	4245	4214	4256	4305	3956	3751	3599	3472	3179	2877	2719	2607	2583
20	4491	4495	4470	4498	4506	4509	4366	4293	4300	4346	3899	3652	3234	2655	2222	1979	1870	1837	1822
25	5136	5065	4937	4734	4690	4711	4619	4416	4357	4388	3867	3357	2512	2017	1735	1669	1691	1722	1724
30	5633	5610	5526	5353	5019	4895	4869	4543	4456	4502	3859	2801	2111	1766	1742	1627	1587	1551	1549
35	6195	6153	6054	5935	5647	5152	4914	4703	4619	4696	3631	2351	1941	1731	1531	1388	1318	1304	1301
40	7317	7030	6866	6594	6256	5688	5235	4964	4804	4897	3138	2048	1849	1502	1357	1304	1301	1318	1313
45	8927	8796	8555	8128	7682	7063	6144	5591	5270	5276	2652	1874	1686	1313	1292	1341	1309	1278	1261
50	11872	12072	11813	10617	9366	8369	7302	6363	6220	6138	1909	1753	1452	1211	1261	1205	1045	982	972
55	15717	16213	15939	14432	12974	11325	9372	7498	7383	7012	1311	1179	1125	1155	1079	916	718	641	635
60	16855	18439	19483	17983	16853	14982	11221	8389	8365	7335	1035	1038	1039	966	615	576	569	552	549
65	12926	16785	20924	20558	18710	17119	12798	8987	9240	7580	924	980	881	480	497	528	525	500	497
70	4890	6589	10249	14252	17757	15999	11311	6919	6293	4956	902	736	367	357	392	419	393	358	348
75	2187	3218	4220	5152	5369	7877	4617	2972	1326	997	565	274	237	244	244	239	225	188	180
80	947	1291	1705	1872	2037	1965	1888	1724	799	506	197	118	97	73	48	25	18	14	14
85	232	251	299	339	399	393	494	450	250	101	17	11	10	8	8	6	3	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

UTDO R PH TO TR C R PORT
CATALOG: DSX0.4.LA164.AY (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 221263 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRIC LAB
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA164.AY (TZ)
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA164
Lamp: LED C.16000 Lumens
Lamp Output: Total luminaire Lumens: 15510.8, absolute photometry *
Input Wattage: 114
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 12,981.8 at Horizontal: 62.5°, Vertical: 72.5°
Roadway Class: EDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment and application (including, but not limited to, voltage variation and dirt accumulation) can cause actual Photometric performance to differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,277.5	8.2%
0-40	2,409.7	15.5%
0-60	7,027.3	45.3%
60-90	8,483.5	54.7%
70-100	4,337.2	28%
90-120	0.000	0%
0-90	15,510.8	100%
90-180	0.000	0%
0-180	15,510.8	100%

Lumens Per Zone

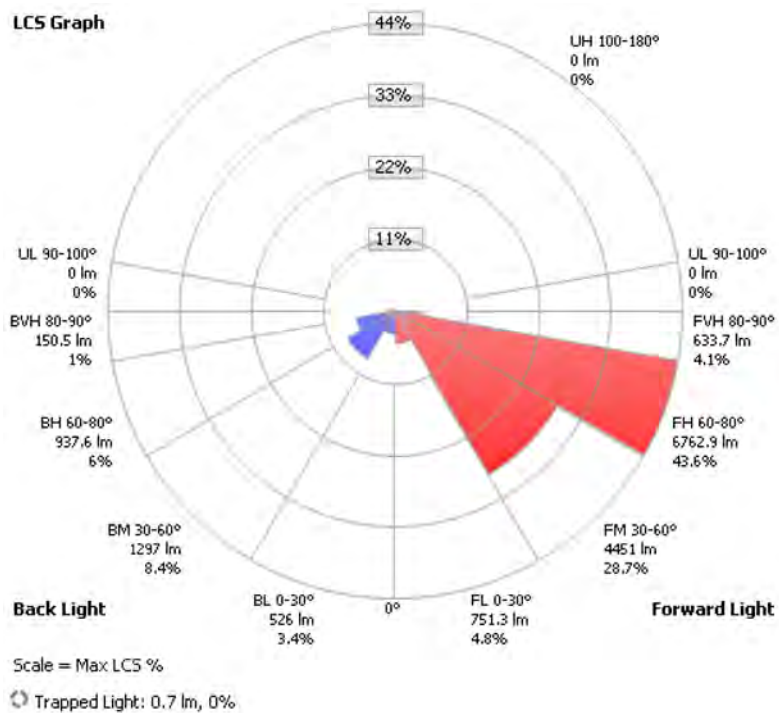
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	147.1	0.9%	90-100	0.000	0%
10-20	422.2	2.7%	100-110	0.000	0%
20-30	708.2	4.6%	110-120	0.000	0%
30-40	1,132.2	7.3%	120-130	0.000	0%
40-50	1,780.5	11.5%	130-140	0.000	0%
50-60	2,837.1	18.3%	140-150	0.000	0%
60-70	4,146.3	26.7%	150-160	0.000	0%
70-80	3,551.0	22.9%	160-170	0.000	0%
80-90	786.2	5.1%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	9,000.6	
	Lumens	% Lamp
Downward Street Side:	12,599.0	81.2%
Downward House Side:	2,911.1	18.8%
Downward Total:	15,510.1	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	15,510.1	100%

LCS Table

BUG Rating	B2 - U0 - G4	
Forward Light	Lumens	Lumens %
Low(0-30):	751.3	4.8%
Medium(30-60):	4,451.0	28.7%
High(60-80):	6,762.9	43.6%
Very High(80-90):	633.7	4.1%
Back Light		
Low(0-30):	526.0	3.4%
Medium(30-60):	1,297.0	8.4%
High(60-80):	937.6	6%
Very High(80-90):	150.5	1%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.7	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558
5	1578	1578	1578	1584	1588	1590	1593	1588	1584	1574	1553	1537	1513	1502	1488	1476	1467	1463	1460
10	1593	1593	1597	1606	1611	1621	1623	1621	1606	1588	1537	1495	1463	1439	1426	1409	1392	1383	1383
15	1614	1621	1625	1646	1664	1681	1685	1676	1636	1602	1509	1458	1414	1342	1247	1184	1147	1124	1128
20	1725	1713	1709	1720	1734	1764	1783	1750	1658	1599	1479	1398	1240	1096	1012	994	1007	1014	1016
25	1990	1960	1920	1889	1876	1880	1889	1824	1662	1588	1428	1238	1010	938	975	1044	1100	1133	1137
30	2336	2319	2261	2200	2122	2066	2020	1913	1690	1602	1353	1022	864	912	1026	1124	1189	1221	1226
35	2732	2706	2669	2637	2503	2340	2215	2055	1796	1667	1244	877	815	919	1096	1281	1370	1407	1411
40	3336	3280	3227	3178	3018	2772	2530	2319	2010	1815	1135	808	840	1103	1170	1165	1180	1170	1167
45	4102	4058	3921	3812	3668	3361	3020	2762	2410	2099	1140	813	1054	1063	1022	973	938	938	938
50	4991	4954	4835	4631	4387	4072	3724	3450	2999	2570	1226	959	1052	1059	936	817	776	766	769
55	5746	5841	5850	5738	5411	5068	4655	4374	3743	3148	1314	1022	1077	1059	836	748	731	726	724
60	6215	6533	6902	6959	6885	6553	5971	5623	4740	3828	1267	1035	1105	957	766	733	701	696	699
65	5673	6265	7092	8100	8986	8649	8009	7468	6133	4647	1105	1031	1033	845	652	659	646	603	597
70	3339	4253	5697	7378	9741	11621	11255	9911	7737	5372	859	884	789	618	603	585	515	469	452
75	664	896	1551	3482	7584	11031	12835	10632	7545	4852	662	696	529	532	529	436	357	339	335
80	372	483	659	1040	2241	7073	8933	6057	2721	1627	527	550	469	452	441	390	372	227	125
85	137	199	270	409	627	1857	2533	1463	523	262	339	427	460	413	330	276	195	46	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

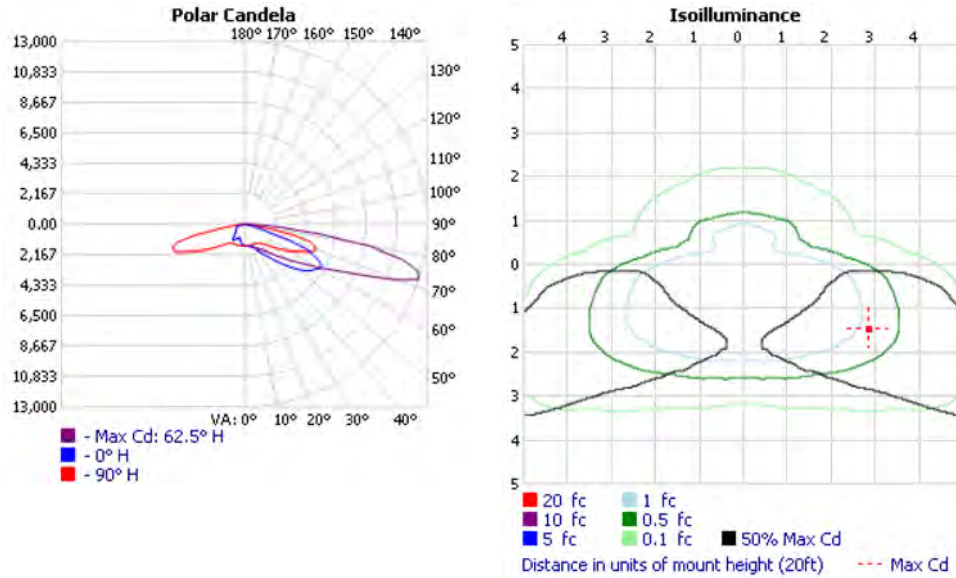
Type C1



UTDO R PH TO TR C R PORT
CATALOG: DSX0.4.LA164.AY (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 221263 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRIC LAB
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA164.AY (TZ)
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA164
Lamp: LED C.16000 Lumens
Lamp Output: Total luminaire Lumens: 15510.8, absolute photometry *
Input Wattage: 114
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 12,981.8 at Horizontal: 62.5°, Vertical: 72.5°
Roadway Class: EDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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ISF 221263 - SUM23016
VISUAL PHOTOMETRI TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,277.5	8.2%
0-40	2,409.7	15.5%
0-60	7,027.3	45.3%
60-90	8,483.5	54.7%
70-100	4,337.2	28%
90-120	0.000	0%
0-90	15,510.8	100%
90-180	0.000	0%
0-180	15,510.8	100%

Lumens Per Zone

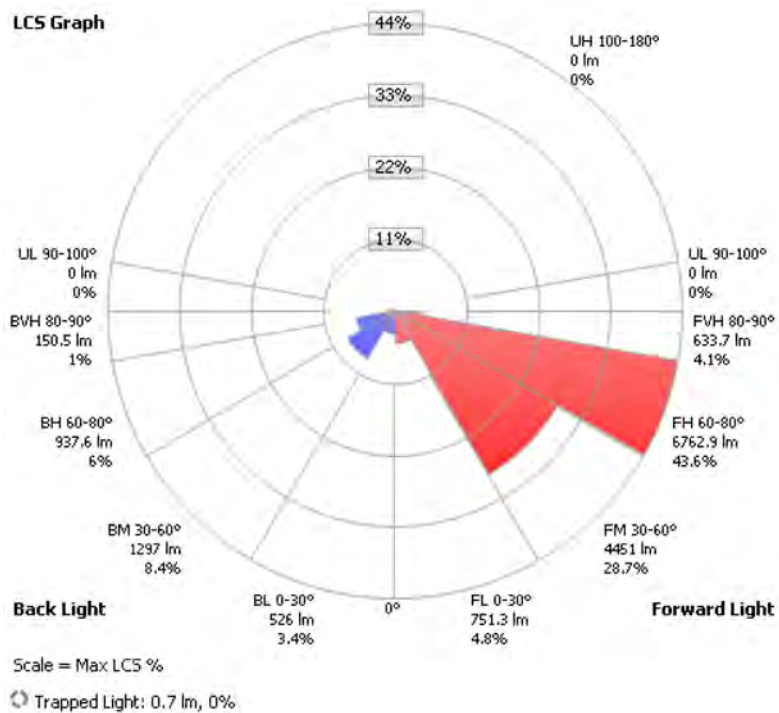
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	147.1	0.9%	90-100	0.000	0%
10-20	422.2	2.7%	100-110	0.000	0%
20-30	708.2	4.6%	110-120	0.000	0%
30-40	1,132.2	7.3%	120-130	0.000	0%
40-50	1,780.5	11.5%	130-140	0.000	0%
50-60	2,837.1	18.3%	140-150	0.000	0%
60-70	4,146.3	26.7%	150-160	0.000	0%
70-80	3,551.0	22.9%	160-170	0.000	0%
80-90	786.2	5.1%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	9,000.6	
	Lumens	% Lamp
Downward Street Side:	12,599.0	81.2%
Downward House Side:	2,911.1	18.8%
Downward Total:	15,510.1	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	15,510.1	100%

LCS Table

BUG Rating	B2 - U0 - G4	
Forward Light	Lumens	Lumens %
Low(0-30):	751.3	4.8%
Medium(30-60):	4,451.0	28.7%
High(60-80):	6,762.9	43.6%
Very High(80-90):	633.7	4.1%
Back Light	Lumens	Lumens %
Low(0-30):	526.0	3.4%
Medium(30-60):	1,297.0	8.4%
High(60-80):	937.6	6%
Very High(80-90):	150.5	1%
Uplight	Lumens	Lumens %
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.7	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558	1558
5	1578	1578	1578	1584	1588	1590	1593	1588	1584	1574	1553	1537	1513	1502	1488	1476	1467	1463	1460
10	1593	1593	1597	1606	1611	1621	1623	1621	1606	1588	1537	1495	1463	1439	1426	1409	1392	1383	1383
15	1614	1621	1625	1646	1664	1681	1685	1676	1636	1602	1509	1458	1414	1342	1247	1184	1147	1124	1128
20	1725	1713	1709	1720	1734	1764	1783	1750	1658	1599	1479	1398	1240	1096	1012	994	1007	1014	1016
25	1990	1960	1920	1889	1876	1880	1889	1824	1662	1588	1428	1238	1010	938	975	1044	1100	1133	1137
30	2336	2319	2261	2200	2122	2066	2020	1913	1690	1602	1353	1022	864	912	1026	1124	1189	1221	1226
35	2732	2706	2669	2637	2503	2340	2215	2055	1796	1667	1244	877	815	919	1096	1281	1370	1407	1411
40	3336	3280	3227	3178	3018	2772	2530	2319	2010	1815	1135	808	840	1103	1170	1165	1180	1170	1167
45	4102	4058	3921	3812	3668	3361	3020	2762	2410	2099	1140	813	1054	1063	1022	973	938	938	938
50	4991	4954	4835	4631	4387	4072	3724	3450	2999	2570	1226	959	1052	1059	936	817	776	766	769
55	5746	5841	5850	5738	5411	5068	4655	4374	3743	3148	1314	1022	1077	1059	836	748	731	726	724
60	6215	6533	6902	6959	6885	6553	5971	5623	4740	3828	1267	1035	1105	957	766	733	701	696	699
65	5673	6265	7092	8100	8986	8649	8009	7468	6133	4647	1105	1031	1033	845	652	659	646	603	597
70	3339	4253	5697	7378	9741	11621	11255	9911	7737	5372	859	884	789	618	603	585	515	469	452
75	664	896	1551	3482	7584	11031	12835	10632	7545	4852	662	696	529	532	529	436	357	339	335
80	372	483	659	1040	2241	7073	8933	6057	2721	1627	527	550	469	452	441	390	372	227	125
85	137	199	270	409	627	1857	2533	1463	523	262	339	427	460	413	330	276	195	46	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

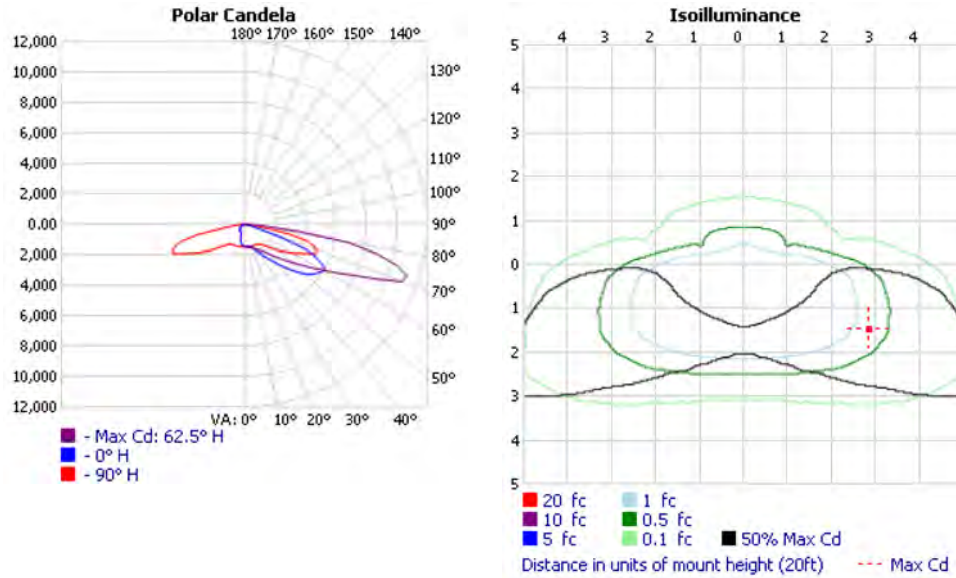
Type C1/BLS



UTDO R PH TO TR C R PORT
CATALOG: DSX0.4.LA164.AY.BLS (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 222163 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA164.AY.BLS (TZ)
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA164
Lamp: LED C.16000 Lumens
Lamp Output: Total luminaire Lumens: 13445.6, absolute photometry *
Input Wattage: 114
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 11,180.1 at Horizontal: 62.5°, Vertical: 72.5°
Roadway Class: MEDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

Visual Photometric Tool 1.2.46 copyright 2023, Acuity Brands Lighting.

This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment and application (including, but not limited to, voltage variation and dirt accumulation) can cause actual Photometric performance to differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

ISF 222163 - SUM23016
VISUAL PHOTOMETRI TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,169.2	8.7%
0-40	2,171.9	16.2%
0-60	6,471.6	48.1%
60-90	6,974.1	51.9%
70-100	3,199.8	23.8%
90-120	0.000	0%
0-90	13,445.6	100%
90-180	0.000	0%
0-180	13,445.6	100%

Lumens Per Zone

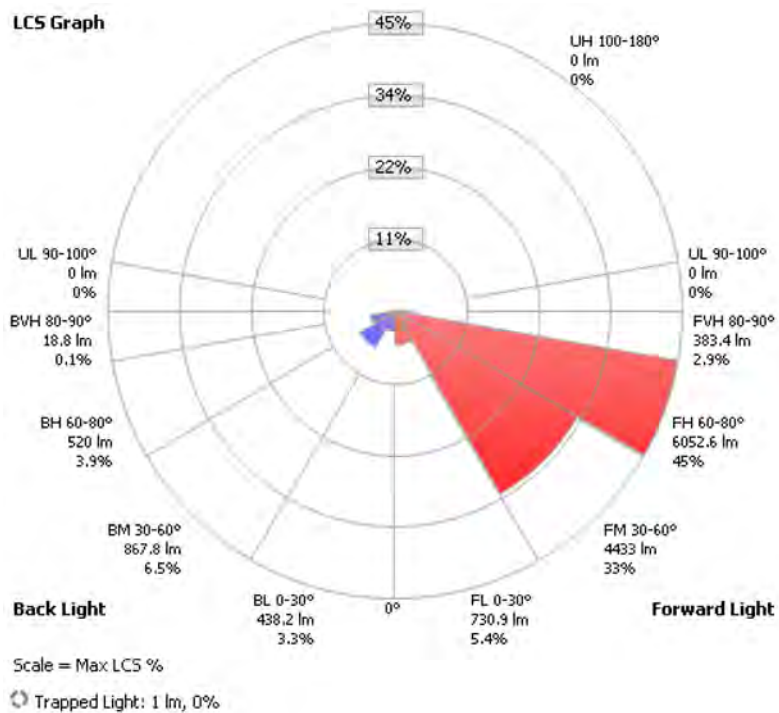
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	139.1	1.0%	90-100	0.000	0%
10-20	395.2	2.9%	100-110	0.000	0%
20-30	634.9	4.7%	110-120	0.000	0%
30-40	1,002.7	7.5%	120-130	0.000	0%
40-50	1,641.3	12.2%	130-140	0.000	0%
50-60	2,658.5	19.8%	140-150	0.000	0%
60-70	3,774.2	28.1%	150-160	0.000	0%
70-80	2,795.7	20.8%	160-170	0.000	0%
80-90	404.2	3.0%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	6,886.0	
	Lumens	% Lamp
Downward Street Side:	11,599.9	86.3%
Downward House Side:	1,844.7	13.7%
Downward Total:	13,444.6	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	13,444.6	100%

LCS Table

BUG Rating	B2 - U0 - G3	
Forward Light	Lumens	Lumens %
Low(0-30):	730.9	5.4%
Medium(30-60):	4,433.0	33%
High(60-80):	6,052.6	45%
Very High(80-90):	383.4	2.9%
Back Light	Lumens	Lumens %
Low(0-30):	438.2	3.3%
Medium(30-60):	867.8	6.5%
High(60-80):	520.0	3.9%
Very High(80-90):	18.8	0.1%
Uplight	Lumens	Lumens %
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	1.0	0%



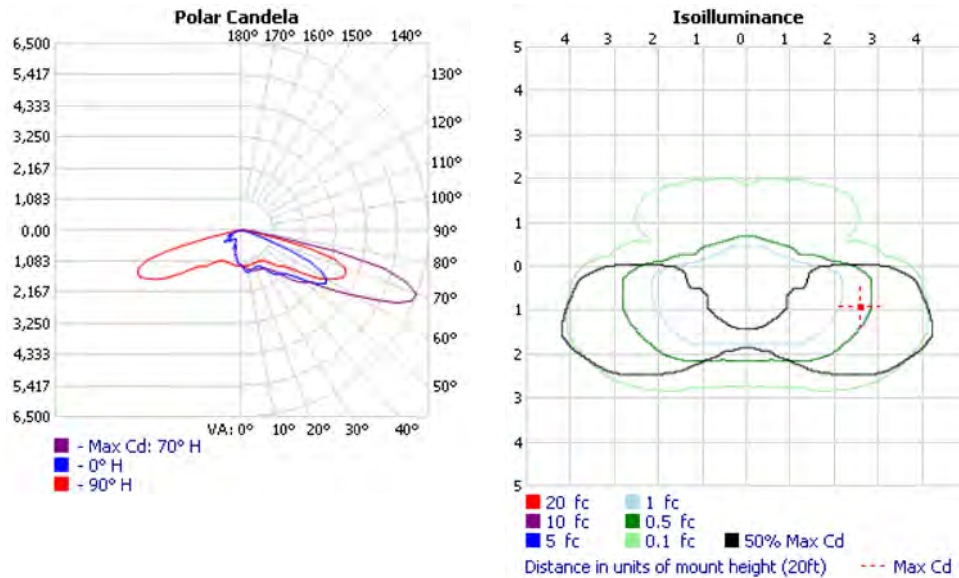
Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474	1474
5	1483	1479	1479	1481	1483	1488	1488	1492	1488	1483	1479	1465	1452	1433	1419	1412	1419	1403	1399
10	1519	1513	1519	1526	1533	1535	1533	1533	1519	1510	1470	1428	1387	1349	1319	1305	1300	1282	1280
15	1559	1556	1566	1577	1600	1613	1615	1606	1568	1542	1447	1376	1319	1244	1130	1036	981	940	933
20	1714	1691	1680	1680	1686	1702	1714	1686	1606	1551	1408	1312	1155	952	794	693	646	625	625
25	2001	1958	1919	1868	1839	1825	1825	1776	1624	1542	1356	1166	876	671	584	559	557	552	552
30	2337	2295	2263	2195	2109	2026	1967	1871	1661	1551	1278	940	655	568	559	554	541	529	529
35	2770	2708	2674	2624	2510	2330	2177	2022	1771	1629	1173	757	575	568	579	566	532	516	514
40	3363	3286	3226	3158	3041	2779	2491	2288	1985	1782	1086	648	566	616	596	534	509	486	481
45	4187	4062	3947	3801	3653	3363	2989	2738	2382	2090	1068	612	616	634	557	489	420	393	388
50	5043	4949	4855	4654	4390	4066	3687	3418	2976	2569	1137	650	648	582	489	388	338	317	313
55	5634	5773	5839	5720	5462	5070	4614	4324	3733	3148	1223	684	607	511	393	317	288	270	270
60	6048	6398	6786	6925	6886	6508	5903	5554	4707	3806	1125	623	538	415	317	267	226	196	194
65	5221	5762	6633	7774	8821	8630	7753	7366	5978	4584	757	495	456	319	205	132	125	125	125
70	2538	3244	4796	6745	9140	11016	10661	9124	6984	5006	479	438	306	150	100	94	96	82	73
75	472	652	1113	2679	6115	9243	10368	8881	6289	4223	219	297	114	73	55	45	45	36	32
80	196	246	404	612	1629	4652	6886	4463	2136	1305	123	98	36	25	18	14	9	9	7
85	69	85	114	210	308	570	1186	908	347	169	34	14	9	5	2	0	2	2	2
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

UTDO R PH TO TR C R PORT
CATALOG: DSX0.1.LA104.AY

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 33813-SUM21001
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 08/01/2021
Catalog: DSX0.1.LA104.AY
Description: D-Series 0 Area luminaire
Lamp Catalog: LA104
Lamp: LED C.10000 Lumens
Lamp Output: Total luminaire Lumens: 9406.7, **absolute photometry ***
Input Wattage: 81
Luminous Opening: Rectangle (L: 7.92", W: 12.96")
Max Cd: 6,464.1 at Horizontal: 70°, Vertical: 70°
Roadway Class: MEDIUM, TYPE III

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	972.2	10.3%
0-40	1,721.1	18.3%
0-60	4,858.6	51.7%
60-90	4,548.1	48.3%
70-100	1,846.0	19.6%
90-120	0.000	0%
0-90	9,406.7	100%
90-180	0.000	0%
0-180	9,406.7	100%

Lumens Per Zone

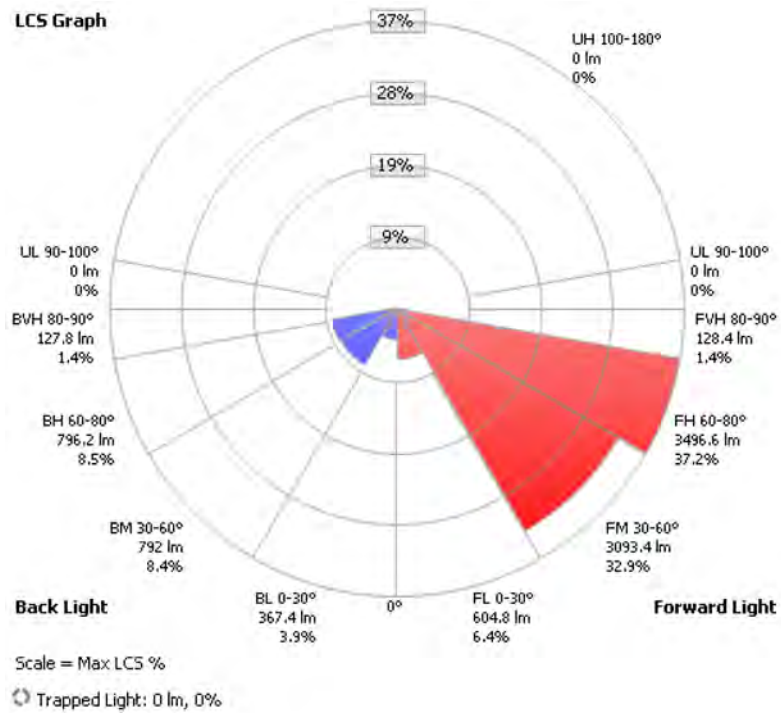
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	122.0	1.3%	90-100	0.000	0%
10-20	340.9	3.6%	100-110	0.000	0%
20-30	509.3	5.4%	110-120	0.000	0%
30-40	748.9	8.0%	120-130	0.000	0%
40-50	1,189.1	12.6%	130-140	0.000	0%
50-60	1,948.4	20.7%	140-150	0.000	0%
60-70	2,702.1	28.7%	150-160	0.000	0%
70-80	1,589.7	16.9%	160-170	0.000	0%
80-90	256.3	2.7%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE III, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	1,196.4	
	Lumens	% Lamp
Downward Street Side:	7,323.3	77.9%
Downward House Side:	2,083.4	22.1%
Downward Total:	9,406.7	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	9,406.7	100%

LCS Table

BUG Rating	B2 - U0 - G2	
Forward Light	Lumens	Lumens %
Low(0-30):	604.8	6.4%
Medium(30-60):	3,093.4	32.9%
High(60-80):	3,496.6	37.2%
Very High(80-90):	128.4	1.4%
Back Light		
Low(0-30):	367.4	3.9%
Medium(30-60):	792.0	8.4%
High(60-80):	796.2	8.5%
Very High(80-90):	127.8	1.4%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.0	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241	1241
5	1436	1432	1428	1406	1387	1360	1326	1290	1256	1240	1207	1195	1186	1178	1174	1170	1171	1167	1167
10	1469	1474	1474	1473	1471	1454	1419	1357	1281	1246	1188	1172	1161	1142	1103	1056	1021	1002	1001
15	1440	1451	1464	1468	1475	1480	1465	1404	1296	1237	1159	1133	1050	927	878	888	900	901	904
20	1362	1379	1402	1438	1474	1489	1496	1434	1299	1223	1123	1010	844	794	724	650	606	588	589
25	1390	1412	1431	1447	1479	1492	1502	1469	1313	1226	1074	844	680	594	568	596	662	681	688
30	1538	1542	1556	1577	1567	1567	1541	1507	1329	1231	1011	711	606	672	604	458	418	406	404
35	1835	1836	1831	1824	1795	1737	1706	1630	1415	1289	935	737	689	518	432	381	373	372	370
40	1980	2057	2155	2181	2144	2089	1965	1841	1640	1457	884	811	535	412	373	374	384	389	389
45	2150	2217	2399	2658	2749	2863	2590	2334	2065	1777	888	678	454	388	392	410	443	526	541
50	2608	2616	2682	2834	3036	3563	3345	2637	2338	1975	754	601	438	404	442	598	544	489	479
55	3270	3302	3538	3737	3621	4130	3625	3368	3256	2679	656	555	456	524	693	625	677	702	708
60	3383	3605	4193	5014	4906	4684	4624	4501	4361	3421	617	594	699	928	827	950	646	456	425
65	2658	2906	3789	5187	5783	5771	5946	5800	5312	3891	600	838	1057	1100	944	563	477	482	471
70	943	1195	1971	3865	5136	5614	6280	6218	5473	3803	744	1079	1132	797	494	500	517	462	437
75	271	370	507	1113	2608	4161	4911	4792	3635	2436	864	938	888	489	404	349	314	281	269
80	153	198	237	335	523	868	1154	1062	603	523	713	907	575	293	238	215	195	166	159
85	85	116	146	176	199	249	372	355	228	196	468	690	289	151	123	116	92	59	59
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

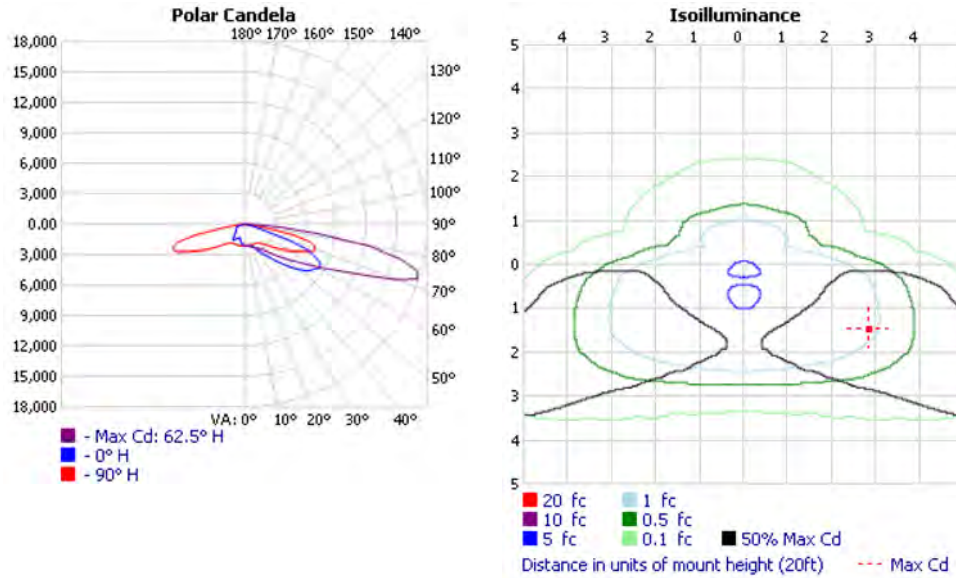
Type E1



UTDO R PH TO TR C R PORT
CATALOG: DSX0.4.LA224.AY

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 221263 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA224.AY
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA224
Lamp: LED C.22000 Lumens
Lamp Output: Total luminaire Lumens: 21328.1, absolute photometry *
Input Wattage: 169
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 17,850.6 at Horizontal: 62.5°, Vertical: 72.5°
Roadway Class: MEDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.
*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,756.6	8.2%
0-40	3,313.4	15.5%
0-60	9,662.9	45.3%
60-90	11,665.3	54.7%
70-100	5,963.9	28%
90-120	0.000	0%
0-90	21,328.1	100%
90-180	0.000	0%
0-180	21,328.1	100%

Lumens Per Zone

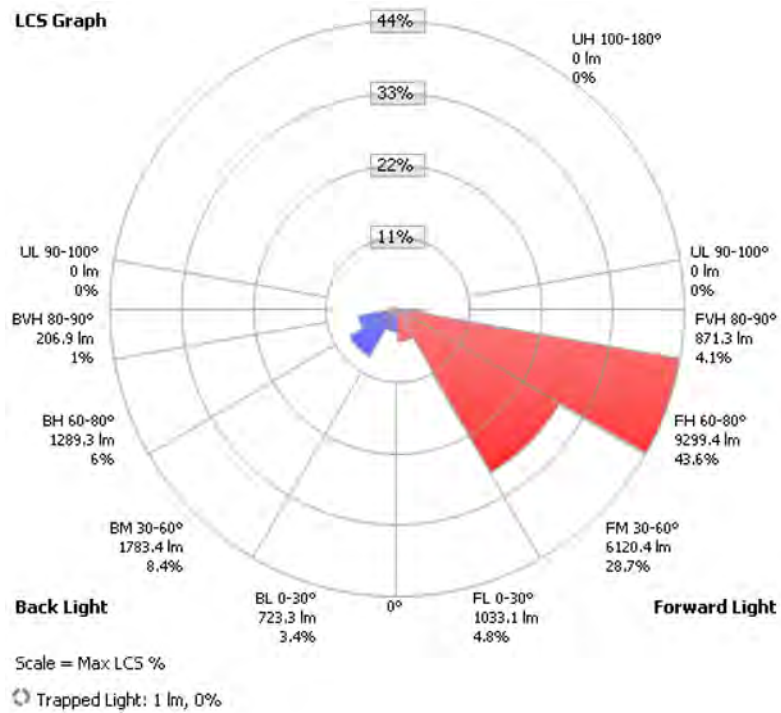
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	202.2	0.9%	90-100	0.000	0%
10-20	580.5	2.7%	100-110	0.000	0%
20-30	973.8	4.6%	110-120	0.000	0%
30-40	1,556.9	7.3%	120-130	0.000	0%
40-50	2,448.3	11.5%	130-140	0.000	0%
50-60	3,901.2	18.3%	140-150	0.000	0%
60-70	5,701.4	26.7%	150-160	0.000	0%
70-80	4,882.8	22.9%	160-170	0.000	0%
80-90	1,081.1	5.1%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	12,376.3	
	Lumens	% Lamp
Downward Street Side:	17,324.2	81.2%
Downward House Side:	4,003.0	18.8%
Downward Total:	21,327.2	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	21,327.2	100%

LCS Table

BUG Rating	B3 - U0 - G5	
Forward Light	Lumens	Lumens %
Low(0-30):	1,033.1	4.8%
Medium(30-60):	6,120.4	28.7%
High(60-80):	9,299.4	43.6%
Very High(80-90):	871.3	4.1%
Back Light		
Low(0-30):	723.3	3.4%
Medium(30-60):	1,783.4	8.4%
High(60-80):	1,289.3	6%
Very High(80-90):	206.9	1%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	1.0	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142	2142
5	2170	2170	2170	2177	2184	2187	2190	2184	2177	2164	2136	2113	2081	2065	2047	2030	2018	2011	2008
10	2190	2190	2196	2209	2215	2228	2231	2228	2209	2184	2113	2056	2011	1979	1960	1938	1915	1902	1902
15	2219	2228	2235	2264	2289	2311	2318	2305	2250	2202	2075	2005	1944	1845	1714	1628	1577	1545	1551
20	2372	2356	2350	2365	2384	2426	2452	2407	2279	2199	2033	1922	1705	1507	1391	1366	1385	1395	1398
25	2736	2695	2640	2598	2579	2586	2598	2509	2285	2184	1964	1702	1388	1290	1341	1436	1513	1558	1564
30	3212	3189	3109	3026	2918	2841	2778	2630	2324	2202	1861	1405	1188	1254	1411	1545	1634	1679	1685
35	3757	3722	3671	3626	3441	3218	3046	2825	2470	2292	1711	1207	1120	1264	1507	1762	1884	1934	1941
40	4588	4511	4437	4370	4149	3812	3480	3189	2764	2496	1561	1111	1156	1516	1608	1602	1622	1608	1605
45	5640	5580	5391	5242	5043	4622	4152	3798	3313	2886	1567	1117	1450	1462	1405	1337	1290	1290	1290
50	6863	6812	6649	6368	6033	5599	5120	4743	4124	3534	1685	1319	1446	1456	1287	1124	1066	1053	1057
55	7901	8032	8044	7891	7441	6968	6400	6014	5146	4329	1807	1405	1481	1456	1149	1028	1005	999	996
60	8546	8983	9491	9570	9468	9011	8210	7732	6518	5263	1742	1424	1519	1316	1053	1008	964	957	960
65	7801	8615	9752	11138	12357	11893	11013	10269	8434	6390	1519	1417	1420	1162	897	906	888	830	820
70	4591	5848	7833	10145	13394	15979	15476	13628	10639	7387	1181	1216	1085	849	830	805	708	645	622
75	913	1233	2133	4788	10428	15168	17649	14620	10374	6672	910	957	728	731	728	600	491	466	460
80	511	664	906	1430	3081	9726	12283	8329	3741	2238	725	757	645	622	606	536	511	313	172
85	188	274	371	562	862	2553	3483	2011	719	360	466	588	632	568	454	380	268	63	0
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95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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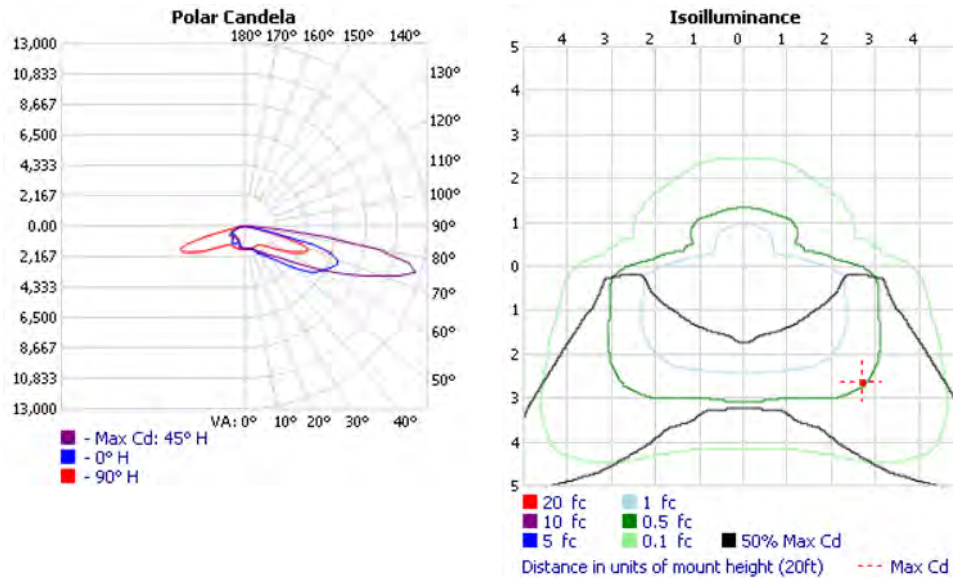
Type F1



UTDO R PH TO TR C R PORT
CATALOG: DSX0.4.LA164.FW (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 221265 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA164.FW (TZ)
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA164
Lamp: LED C.16000 Lumens
Lamp Output: Total luminaire Lumens: 15742.9, absolute photometry *
Input Wattage: 114
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 12,593.6 at Horizontal: 45°, Vertical: 75°
Roadway Class: MEDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment and application (including, but not limited to, voltage variation and dirt accumulation) can cause actual Photometric performance to differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,352.2	8.6%
0-40	2,441.0	15.5%
0-60	6,666.3	42.3%
60-90	9,076.6	57.7%
70-100	4,927.1	31.3%
90-120	0.000	0%
0-90	15,742.9	100%
90-180	0.000	0%
0-180	15,742.9	100%

Lumens Per Zone

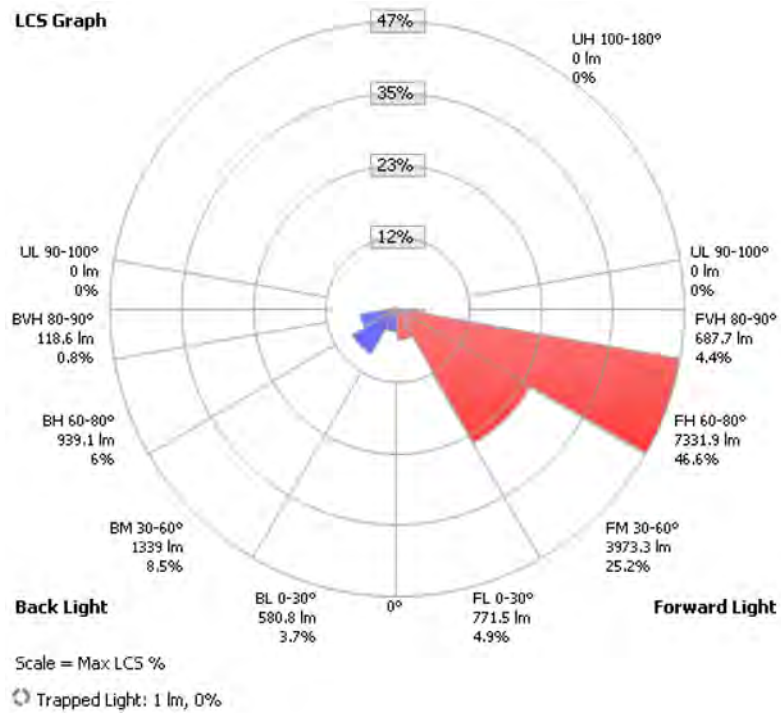
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	156.4	1.0%	90-100	0.000	0%
10-20	449.0	2.9%	100-110	0.000	0%
20-30	746.8	4.7%	110-120	0.000	0%
30-40	1,088.8	6.9%	120-130	0.000	0%
40-50	1,600.9	10.2%	130-140	0.000	0%
50-60	2,624.3	16.7%	140-150	0.000	0%
60-70	4,149.5	26.4%	150-160	0.000	0%
70-80	4,118.6	26.2%	160-170	0.000	0%
80-90	808.5	5.1%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	9,729.2	
	Lumens	% Lamp
Downward Street Side:	12,764.4	81.1%
Downward House Side:	2,977.4	18.9%
Downward Total:	15,741.9	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	15,741.9	100%

LCS Table

BUG Rating	B2 - U0 - G4	
Forward Light	Lumens	Lumens %
Low(0-30):	771.5	4.9%
Medium(30-60):	3,973.3	25.2%
High(60-80):	7,331.9	46.6%
Very High(80-90):	687.7	4.4%
Back Light		
Low(0-30):	580.8	3.7%
Medium(30-60):	1,339.0	8.5%
High(60-80):	939.1	6%
Very High(80-90):	118.6	0.8%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	1.0	0%



Candela Table - Type C

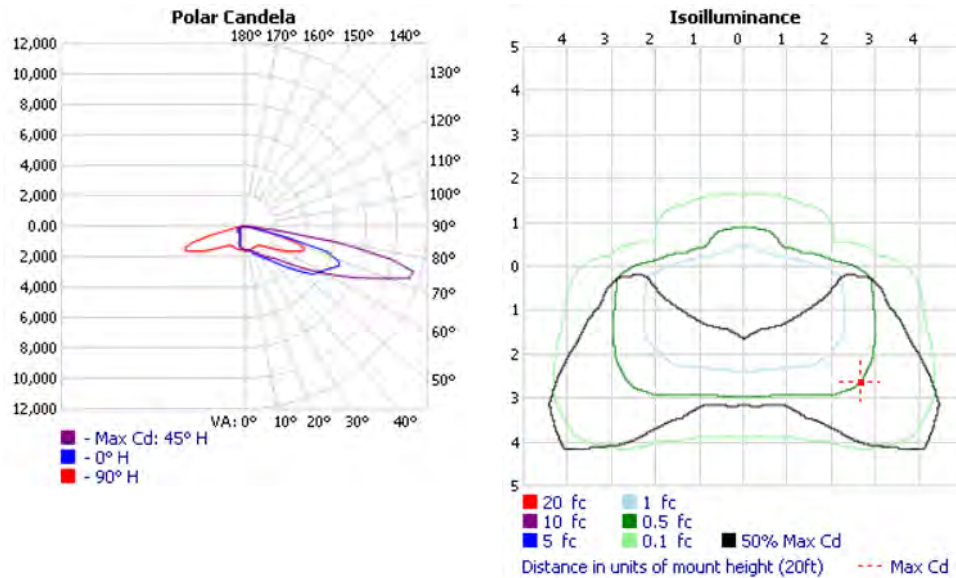
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5	1636	1645	1650	1650	1667	1674	1686	1688	1688	1676	1659	1643	1626	1617	1603	1593	1596	1588	1555
10	1617	1626	1636	1645	1664	1683	1704	1721	1711	1690	1648	1615	1588	1579	1569	1555	1541	1522	1489
15	1669	1674	1678	1683	1707	1726	1754	1759	1728	1692	1621	1584	1553	1461	1380	1326	1291	1276	1253
20	1820	1815	1801	1787	1782	1797	1818	1797	1730	1683	1584	1522	1352	1220	1144	1132	1158	1180	1165
25	2054	2047	2007	1962	1931	1898	1893	1830	1721	1664	1517	1303	1082	1026	1134	1245	1319	1366	1345
30	2262	2250	2229	2182	2113	2035	1962	1849	1716	1640	1385	1021	891	1054	1198	1331	1433	1487	1463
35	2571	2531	2485	2420	2343	2213	2078	1910	1763	1650	1180	813	849	969	1106	1276	1408	1485	1466
40	2950	2900	2813	2723	2633	2463	2307	2092	1910	1744	1054	778	851	943	1078	1224	1316	1340	1314
45	3577	3506	3347	3160	2988	2796	2619	2425	2222	2000	1099	827	891	1012	1097	1073	1092	1109	1097
50	4548	4444	4238	3924	3581	3330	3077	2898	2685	2373	1153	851	993	1134	1063	1007	995	988	979
55	5659	5630	5380	5054	4609	4231	3822	3640	3413	2950	1078	917	1123	1205	1050	974	958	948	939
60	6299	6711	6732	6491	6134	5725	5136	4765	4491	3688	974	1031	1245	1158	969	936	952	969	969
65	6855	7148	7945	8315	8069	7782	6807	6138	5814	4448	927	1082	1191	993	879	915	960	979	976
70	7048	7313	8452	10169	10330	10202	8757	7479	6930	4803	856	974	893	804	776	804	742	588	558
75	4978	5567	7360	10648	12594	11554	8642	5971	4465	2799	680	742	648	596	572	548	456	345	267
80	492	808	1954	6311	9729	7611	3427	1655	709	449	504	529	423	440	433	354	295	165	78
85	165	246	357	946	2491	1487	1184	1035	390	182	293	284	295	316	284	234	189	45	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

UTDO R PH TO TR C R PORT

CATALOG: DSX0.4.LA164.FW.BLS (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
 Test #: ISF 23267 - SUM23016
 Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
 Test Date: 20 Jul 2023
 Catalog: DSX0.4.LA164.FW.BLS (TZ)
 Description: D-Series 0 - Area luminaire
 Lamp Catalog: LA164
 Lamp: LED C.16000 Lumens
 Lamp Output: Total luminaire Lumens: 13542.7, *absolute photometry **
 Input Wattage: 114
 Luminous Opening: Rectangle (L: 7.68", W: 11.81")
 Max Cd: 11,491.7 at Horizontal: 45°, Vertical: 75°
 Roadway Class: MEDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,222.1	9%
0-40	2,173.3	16%
0-60	6,060.9	44.8%
60-90	7,481.8	55.2%
70-100	3,724.4	27.5%
90-120	0.000	0%
0-90	13,542.7	100%
90-180	0.000	0%
0-180	13,542.7	100%

Lumens Per Zone

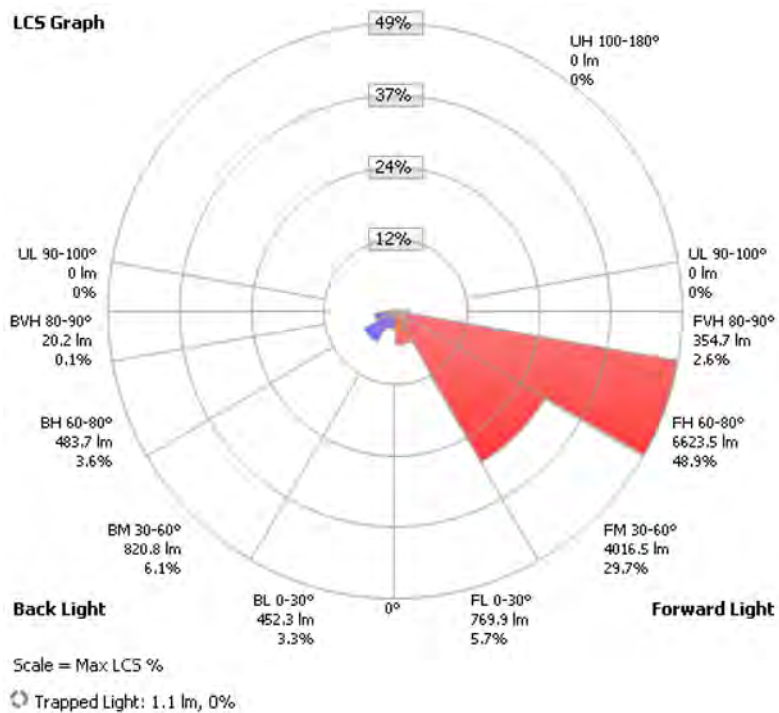
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	148.8	1.1%	90-100	0.000	0%
10-20	420.6	3.1%	100-110	0.000	0%
20-30	652.6	4.8%	110-120	0.000	0%
30-40	951.2	7.0%	120-130	0.000	0%
40-50	1,472.4	10.9%	130-140	0.000	0%
50-60	2,415.2	17.8%	140-150	0.000	0%
60-70	3,757.4	27.7%	150-160	0.000	0%
70-80	3,347.4	24.7%	160-170	0.000	0%
80-90	377.0	2.8%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	6,166.1	
	Lumens	% Lamp
Downward Street Side:	11,764.6	86.9%
Downward House Side:	1,777.0	13.1%
Downward Total:	13,541.6	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	13,541.6	100%

LCS Table

BUG Rating	B1 - U0 - G3	
Forward Light	Lumens	Lumens %
Low(0-30):	769.9	5.7%
Medium(30-60):	4,016.5	29.7%
High(60-80):	6,623.5	48.9%
Very High(80-90):	354.7	2.6%
Back Light		
Low(0-30):	452.3	3.3%
Medium(30-60):	820.8	6.1%
High(60-80):	483.7	3.6%
Very High(80-90):	20.2	0.1%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	1.1	0%



Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589	1589
5	1591	1591	1603	1596	1605	1605	1618	1607	1600	1600	1570	1545	1527	1510	1497	1492	1481	1483	1497
10	1621	1625	1637	1630	1637	1633	1651	1637	1618	1607	1541	1492	1467	1444	1430	1430	1411	1402	1411
15	1724	1720	1715	1697	1706	1701	1706	1686	1635	1605	1504	1448	1418	1322	1205	1108	1037	1012	1014
20	1908	1897	1871	1835	1798	1785	1779	1724	1623	1580	1451	1380	1191	968	816	713	653	634	632
25	2113	2106	2087	2025	1963	1899	1855	1754	1609	1556	1371	1164	846	651	593	575	568	566	566
30	2338	2327	2294	2235	2175	2053	1939	1777	1618	1536	1242	856	612	575	563	552	533	524	526
35	2624	2605	2562	2488	2419	2258	2078	1871	1686	1559	1067	658	566	561	538	515	501	492	492
40	3051	3007	2913	2778	2658	2525	2340	2097	1862	1688	931	598	566	543	524	533	540	529	526
45	3718	3702	3559	3284	3040	2840	2681	2454	2184	1933	961	584	552	570	568	515	446	423	423
50	4484	4511	4394	4116	3773	3432	3111	2908	2624	2285	984	579	616	593	501	430	393	377	372
55	5474	5569	5375	5129	4847	4366	3909	3619	3269	2778	883	609	637	557	442	398	366	345	341
60	5863	6368	6661	6436	6231	5794	5180	4722	4231	3359	708	674	623	474	405	354	313	295	295
65	6399	6746	7523	8028	7960	7766	6718	6079	5483	3968	474	596	579	418	359	299	271	280	285
70	6546	6782	7960	9843	9928	10061	8277	6896	6014	4076	449	538	414	341	269	230	214	182	179
75	3016	3920	6295	9845	11492	10181	7417	4994	3513	2267	345	414	299	239	106	79	79	57	51
80	211	313	828	3511	6166	5203	2584	1435	586	359	244	230	97	60	37	30	16	5	0
85	64	79	119	182	425	548	689	745	288	122	85	32	16	9	7	2	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

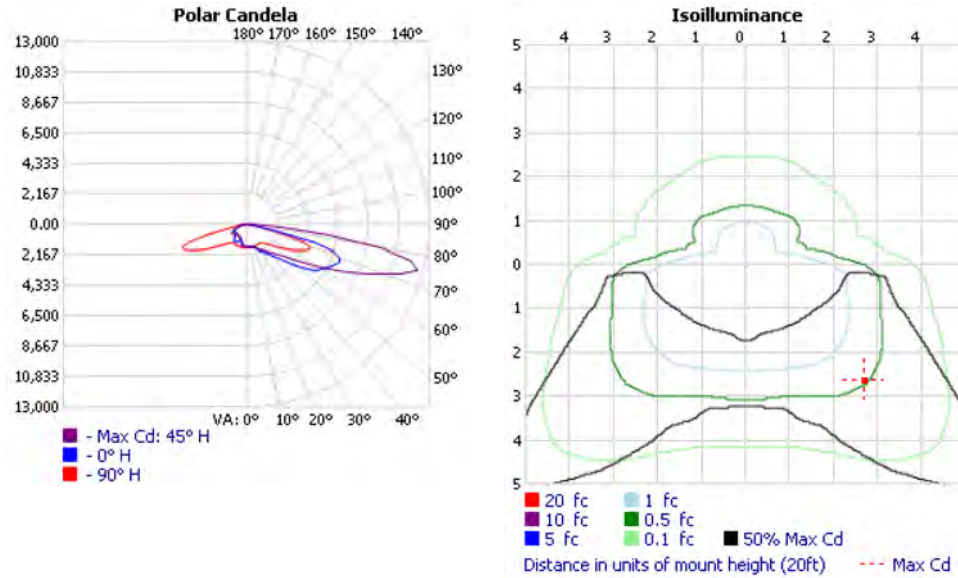
Type F2



UTDO R PH TO TR C R PORT
CATALOG: DSX0.4.LA164.FW (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 221265 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA164.FW (TZ)
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA164
Lamp: LED C.16000 Lumens
Lamp Output: Total luminaire Lumens: 15742.9, **absolute photometry ***
Input Wattage: 114
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 12,593.6 at Horizontal: 45°, Vertical: 75°
Roadway Class: MEDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,352.2	8.6%
0-40	2,441.0	15.5%
0-60	6,666.3	42.3%
60-90	9,076.6	57.7%
70-100	4,927.1	31.3%
90-120	0.000	0%
0-90	15,742.9	100%
90-180	0.000	0%
0-180	15,742.9	100%

Lumens Per Zone

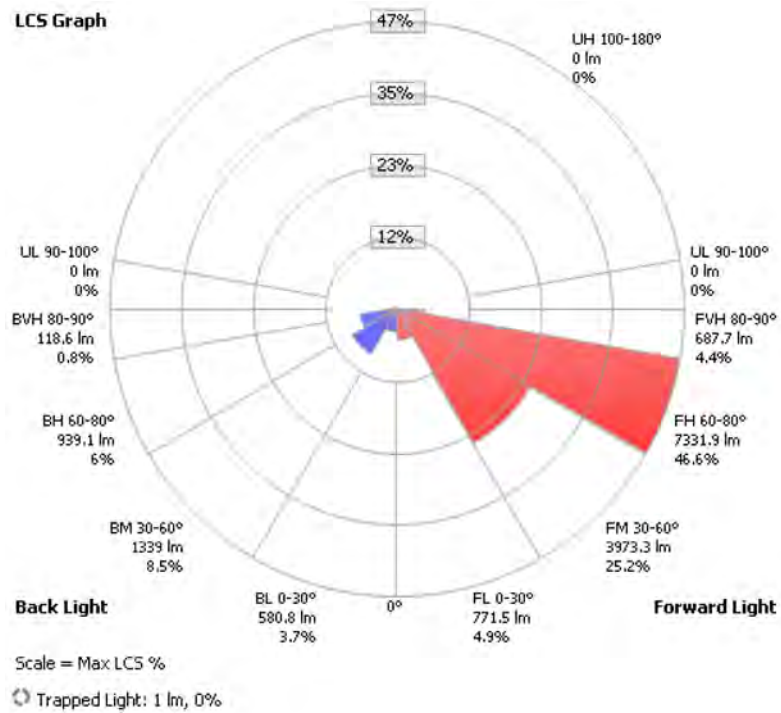
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	156.4	1.0%	90-100	0.000	0%
10-20	449.0	2.9%	100-110	0.000	0%
20-30	746.8	4.7%	110-120	0.000	0%
30-40	1,088.8	6.9%	120-130	0.000	0%
40-50	1,600.9	10.2%	130-140	0.000	0%
50-60	2,624.3	16.7%	140-150	0.000	0%
60-70	4,149.5	26.4%	150-160	0.000	0%
70-80	4,118.6	26.2%	160-170	0.000	0%
80-90	808.5	5.1%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	9,729.2	
	Lumens	% Lamp
Downward Street Side:	12,764.4	81.1%
Downward House Side:	2,977.4	18.9%
Downward Total:	15,741.9	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	15,741.9	100%

LCS Table

BUG Rating	B2 - U0 - G4	
Forward Light	Lumens	Lumens %
Low(0-30):	771.5	4.9%
Medium(30-60):	3,973.3	25.2%
High(60-80):	7,331.9	46.6%
Very High(80-90):	687.7	4.4%
Back Light		
Low(0-30):	580.8	3.7%
Medium(30-60):	1,339.0	8.5%
High(60-80):	939.1	6%
Very High(80-90):	118.6	0.8%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	1.0	0%



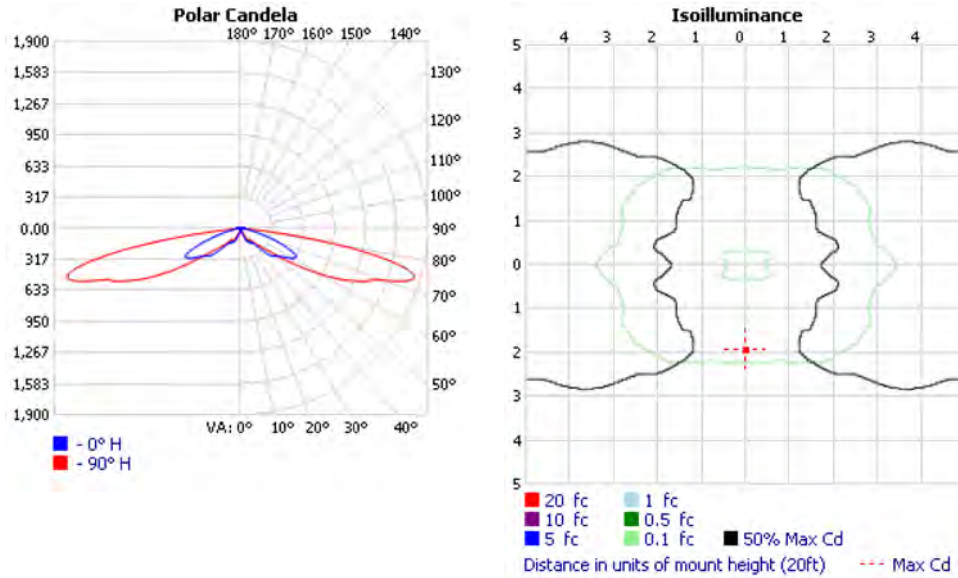
Candela Table - Type C

	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180
0	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664	1664
5	1636	1645	1650	1650	1667	1674	1686	1688	1688	1676	1659	1643	1626	1617	1603	1593	1596	1588	1555
10	1617	1626	1636	1645	1664	1683	1704	1721	1711	1690	1648	1615	1588	1579	1569	1555	1541	1522	1489
15	1669	1674	1678	1683	1707	1726	1754	1759	1728	1692	1621	1584	1553	1461	1380	1326	1291	1276	1253
20	1820	1815	1801	1787	1782	1797	1818	1797	1730	1683	1584	1522	1352	1220	1144	1132	1158	1180	1165
25	2054	2047	2007	1962	1931	1898	1893	1830	1721	1664	1517	1303	1082	1026	1134	1245	1319	1366	1345
30	2262	2250	2229	2182	2113	2035	1962	1849	1716	1640	1385	1021	891	1054	1198	1331	1433	1487	1463
35	2571	2531	2485	2420	2343	2213	2078	1910	1763	1650	1180	813	849	969	1106	1276	1408	1485	1466
40	2950	2900	2813	2723	2633	2463	2307	2092	1910	1744	1054	778	851	943	1078	1224	1316	1340	1314
45	3577	3506	3347	3160	2988	2796	2619	2425	2222	2000	1099	827	891	1012	1097	1073	1092	1109	1097
50	4548	4444	4238	3924	3581	3330	3077	2898	2685	2373	1153	851	993	1134	1063	1007	995	988	979
55	5659	5630	5380	5054	4609	4231	3822	3640	3413	2950	1078	917	1123	1205	1050	974	958	948	939
60	6299	6711	6732	6491	6134	5725	5136	4765	4491	3688	974	1031	1245	1158	969	936	952	969	969
65	6855	7148	7945	8315	8069	7782	6807	6138	5814	4448	927	1082	1191	993	879	915	960	979	976
70	7048	7313	8452	10169	10330	10202	8757	7479	6930	4803	856	974	893	804	776	804	742	588	558
75	4978	5567	7360	10648	12594	11554	8642	5971	4465	2799	680	742	648	596	572	548	456	345	267
80	492	808	1954	6311	9729	7611	3427	1655	709	449	504	529	423	440	433	354	295	165	78
85	165	246	357	946	2491	1487	1184	1035	390	182	293	284	295	316	284	234	189	45	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

UTDO R PH TO TR C R PORT
CATALOG: DBD.1.LA034.DO.NR.W028

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: B21018 - SUM20025
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRIC LAB
Test Date: 20 Oct 2023
Catalog: DBD.1.LA034.DO.NR.W028
Description: Denver iD Bollard
Lamp Catalog: LA034
Lamp: LED C.3,000 Lumens
Lamp Output: Total luminaire Lumens: 2831.4, **absolute photometry ***
Input Wattage: 28
Luminous Opening: Rectangle w/Luminous Sides (L: 5.63", W: 8.98", H: 4.73")
Max Cd: 1,834.3 at Horizontal: 90°, Vertical: 73.75°
Roadway Class: MEDIUM, TYPE IV

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	46.4	1.6%
0-40	144.2	5.1%
0-60	870.7	30.8%
60-90	1,889.8	66.7%
70-100	1,034.1	36.5%
90-120	56.4	2%
0-90	2,760.5	97.5%
90-180	70.9	2.5%
0-180	2,831.4	100%

Roadway Summary

Distribution:	TYPE IV, MEDIUM	
Max Cd, 90 Deg Vert:	20.4	
Max Cd, 80 to <90 Deg:	1,110.4	
	Lumens	% Lamp
Downward Street Side:	1,380.4	48.8%
Downward House Side:	1,380.4	48.8%
Downward Total:	2,760.9	97.5%
Upward Street Side:	35.4	1.3%
Upward House Side:	35.4	1.3%
Upward Total:	70.9	2.5%
Total Lumens:	2,831.8	100%

Lumens Per Zone

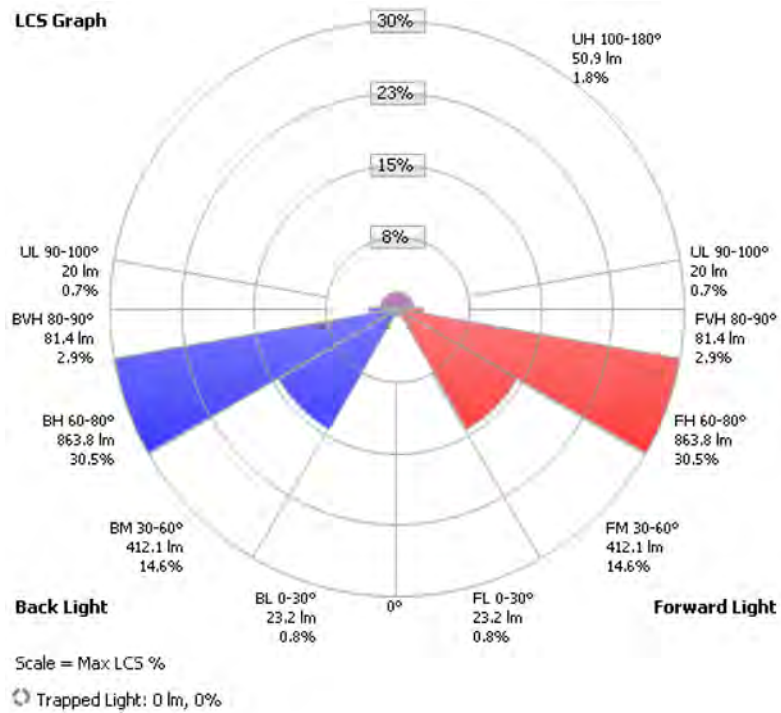
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	0.4	0.0%	90-100	20.0	0.7%
10-20	6.5	0.2%	100-110	31.2	1.1%
20-30	39.4	1.4%	110-120	5.2	0.2%
30-40	97.9	3.5%	120-130	3.2	0.1%
40-50	220.7	7.8%	130-140	4.5	0.2%
50-60	505.8	17.9%	140-150	4.1	0.1%
60-70	875.6	30.9%	150-160	1.9	0.1%
70-80	850.9	30.1%	160-170	0.7	0%
80-90	163.2	5.8%	170-180	0.1	0%

LCS Table

BUG Rating

B2 - U3 - G2

Forward Light	Lumens	Lumens %
Low(0-30):	23.2	0.8%
Medium(30-60):	412.1	14.6%
High(60-80):	863.8	30.5%
Very High(80-90):	81.4	2.9%
Back Light		
Low(0-30):	23.2	0.8%
Medium(30-60):	412.1	14.6%
High(60-80):	863.8	30.5%
Very High(80-90):	81.4	2.9%
Uplight		
Low(90-100):	20.0	0.7%
High(100-180):	50.9	1.8%
Trapped Light:	0.000	0%



Candela Table - Type C

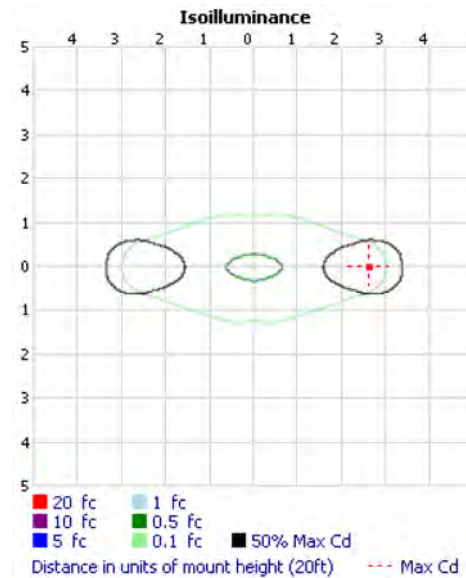
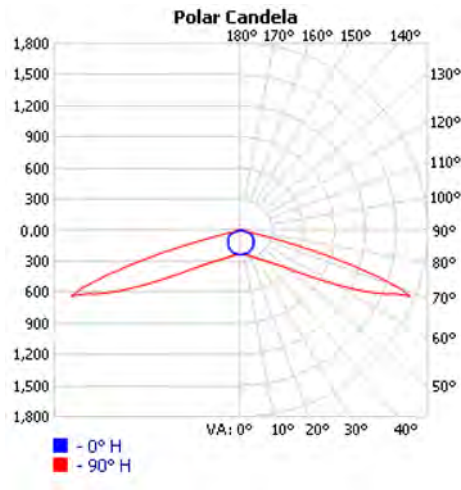
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	1	1	1	1	0	1	2	3	2	2	2	2	2	2	1	2	2	2
10	13	14	14	13	14	13	12	11	9	8	8	8	8	8	7	7	7	7	7
15	26	25	24	23	23	24	24	22	21	22	20	18	18	17	17	15	15	15	14
20	74	72	68	63	59	52	42	36	34	33	30	28	26	25	24	23	23	23	22
25	138	138	137	136	135	131	120	106	86	63	47	42	43	37	37	41	47	57	62
30	160	161	161	161	160	159	162	161	151	132	107	77	60	60	58	59	100	138	132
35	174	175	177	179	181	182	183	182	182	181	172	152	107	87	84	90	134	157	142
40	204	203	204	205	209	214	217	219	222	218	214	221	189	140	127	146	151	150	155
45	338	338	333	321	301	285	279	279	290	270	276	290	261	250	210	195	201	226	237
50	442	446	453	462	472	484	468	452	444	404	393	397	351	361	332	290	300	327	345
55	508	512	521	531	541	574	592	618	642	609	606	635	587	513	474	470	475	536	589
60	613	622	634	637	643	685	715	743	798	768	794	832	859	846	719	675	699	834	946
65	590	603	621	642	684	780	862	930	1018	961	981	995	1024	1131	1040	924	925	1106	1270
70	398	410	428	455	497	604	738	920	1148	1170	1263	1278	1244	1284	1199	1157	1143	1344	1556
75	199	206	222	244	273	338	410	545	720	848	1102	1282	1349	1458	1288	1220	1277	1518	1821
80	88	91	98	107	117	131	154	214	309	428	594	698	804	997	969	864	809	920	1110
85	33	34	37	41	44	45	47	46	50	63	101	130	144	161	143	129	107	80	81
90	6	7	7	8	9	10	11	14	15	16	17	18	19	20	18	17	16	12	10
95	13	13	14	14	15	16	17	19	20	21	22	22	23	23	21	20	19	16	15
100	20	20	20	21	22	22	23	25	25	26	26	27	26	25	24	23	23	21	20
105	42	40	48	49	44	41	42	41	48	51	48	41	42	41	48	51	48	41	42
110	3	3	3	3	6	7	6	6	7	6	7	7	7	6	5	4	3	3	3
115	5	5	5	5	6	6	5	5	5	5	5	6	5	5	5	5	5	5	5
120	7	6	6	6	6	5	5	4	4	4	4	4	4	5	6	7	7	8	8
125	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	4	5	5	5
130	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	2	2	2
135	7	7	8	8	8	8	8	8	8	8	8	7	7	7	7	7	6	6	6
140	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	6
145	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	5	5
150	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4
155	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3
160	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	2
165	2	3	2	2	2	3	3	3	3	3	2	2	2	3	3	2	2	2	2
170	1	2	1	0	1	2	2	1	2	2	1	1	1	2	2	2	1	1	1
175	1	1	1	0	1	1	1	1	1	1	1	1	1	1	2	1	1	1	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

UTDO R PH TO TR C R PORT

CATALOG: DWL.1.LA024.HN.W011

Manufacturer: HOLOPHANE EUROPE LIMITED
 Test #: B20193 - SUM20025
 Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
 Test Date: 25 Nov 2020
 Catalog: DWL.1.LA024.HN.W011
 Description: Denver iD Wall
 Lamp Catalog: LA024
 Lamp: LED C.2,000 Lumens
 Lamp Output: Total luminaire Lumens: 1496.9, **absolute photometry ***
 Input Wattage: 10.3
 Luminous Opening: Rectangle (L: 5.83", W: 12.17")
 Max Cd: 1,753.1 at Horizontal: 90°, Vertical: 68.75°
 Roadway Class: MEDIUM, TYPE I

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	206.9	13.8%
0-40	374.5	25%
0-60	898.0	60%
60-90	598.9	40%
70-100	210.7	14.1%
90-120	0.000	0%
0-90	1,497.0	100%
90-180	0.000	0%
0-180	1,497.0	100%

Lumens Per Zone

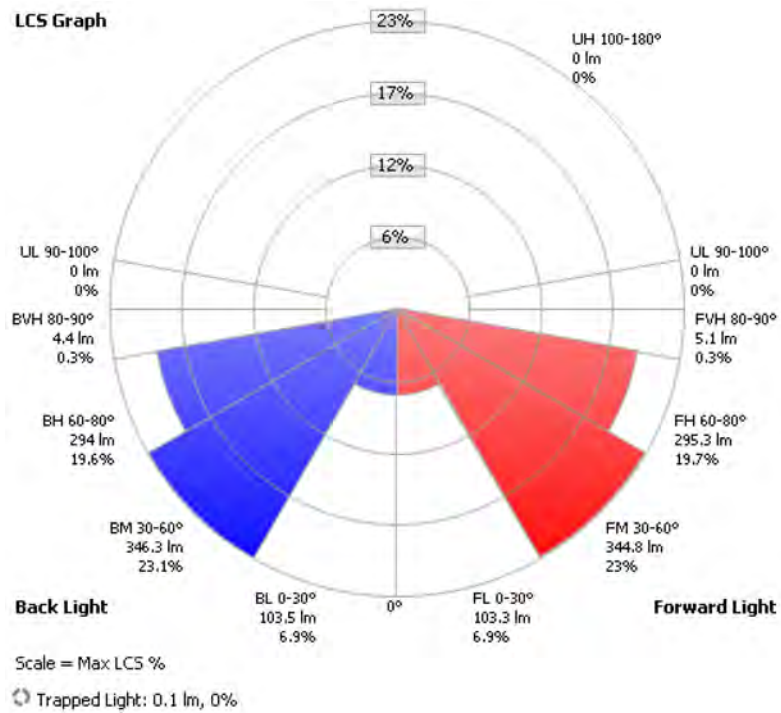
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	22.5	1.5%	90-100	0.000	0%
10-20	68.0	4.5%	100-110	0.000	0%
20-30	116.3	7.8%	110-120	0.000	0%
30-40	167.6	11.2%	120-130	0.000	0%
40-50	222.8	14.9%	130-140	0.000	0%
50-60	300.8	20.1%	140-150	0.000	0%
60-70	388.2	25.9%	150-160	0.000	0%
70-80	201.1	13.4%	160-170	0.000	0%
80-90	9.6	0.6%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE I, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	65.4	
	Lumens	% Lamp
Downward Street Side:	748.5	50%
Downward House Side:	748.3	50%
Downward Total:	1,496.8	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	1,496.8	100%

LCS Table

BUG Rating	B1 - U0 - G1	
Forward Light	Lumens	Lumens %
Low(0-30):	103.3	6.9%
Medium(30-60):	344.8	23%
High(60-80):	295.3	19.7%
Very High(80-90):	5.1	0.3%
Back Light		
Low(0-30):	103.5	6.9%
Medium(30-60):	346.3	23.1%
High(60-80):	294.0	19.6%
Very High(80-90):	4.4	0.3%
Uplight		
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.1	0%



Candela Table - Type C

	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236
5	233	234	234	234	235	235	236	237	238	239	238	237	237	236	236	235	235	235	235
10	231	231	232	233	235	237	239	240	242	243	242	241	239	237	235	233	232	232	232
15	230	230	231	234	236	240	243	246	249	251	249	247	243	239	236	233	231	230	230
20	227	228	231	235	239	245	252	258	263	265	263	258	252	245	240	235	231	228	228
25	219	221	228	234	241	252	264	276	285	288	285	276	265	254	243	235	229	222	220
30	207	212	222	230	243	259	278	297	311	316	311	299	281	263	246	232	224	214	210
35	198	203	213	226	245	268	294	320	340	348	341	324	298	272	249	229	216	205	200
40	188	193	205	223	247	276	310	349	379	394	381	353	314	281	250	226	207	193	187
45	173	178	193	214	243	280	326	382	434	459	436	386	329	282	245	217	193	176	170
50	160	167	185	208	238	284	349	431	520	562	521	433	351	284	239	208	183	165	158
55	150	157	174	198	229	284	369	490	650	742	652	493	369	285	231	198	173	155	149
60	136	142	158	181	212	271	372	546	837	1040	843	550	374	276	217	182	158	142	137
65	118	123	137	156	185	241	341	556	1019	1435	1039	564	344	251	192	160	139	123	118
70	100	105	118	134	159	205	287	496	1079	1624	1099	499	287	207	159	132	116	100	95
75	43	46	66	84	104	130	176	272	512	563	498	262	166	120	94	75	58	38	35
80	7	8	13	21	24	28	47	63	45	0	38	55	40	23	18	15	9	6	6
85	5	5	4	4	3	4	6	12	21	33	22	12	5	3	3	3	4	4	4
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

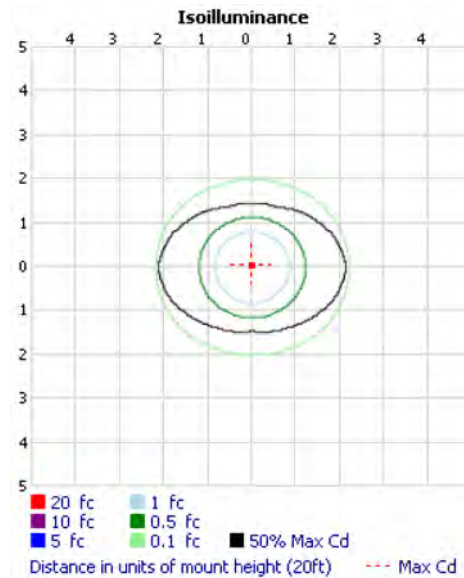
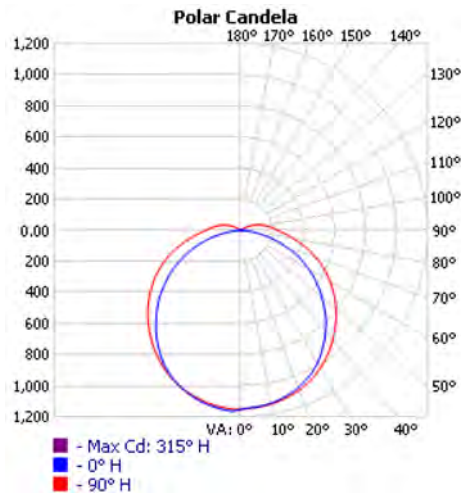
Type I



UTDO R PH TO TR C R PORT
CATALOG: CSV.T.1.LM0448.M1.SY

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 211092P93 - SUM22038
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 12 May 2023
Catalog: SVT.1.LM0448.M1.SY
Description: SVT LED BATTEN - internal luminaire
Lamp Catalog: LM0448
Lamp: LED C.4000 Lumens
Lamp Output: Total luminaire Lumens: 4007.7, **absolute photometry ***
Input Wattage: 28
Luminous Opening: Rectangle w/Luminous Sides (L: 5.4", W: 50.3", H: 1.9")
Max Cd: 1,174.2 at Horizontal: 315°, Vertical: 2.5°
Roadway Class: VERY SHORT, TYPE II

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment and application (including, but not limited to, voltage variation and dirt accumulation) can cause actual Photometric performance to differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

ISF 211092P93 - SUM22038
VISUAL PHOTOMETRI TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	907.2	22.6%
0-40	1,496.0	37.3%
0-60	2,708.1	67.6%
60-90	1,061.5	26.5%
70-100	691.9	17.3%
90-120	231.0	5.8%
0-90	3,769.6	94.1%
90-180	238.1	5.9%
0-180	4,007.7	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	109.1	2.7%	90-100	125.6	3.1%
10-20	314.7	7.9%	100-110	73.1	1.8%
20-30	483.3	12.1%	110-120	32.3	0.8%
30-40	588.8	14.7%	120-130	6.3	0.2%
40-50	622.9	15.5%	130-140	0.2	0%
50-60	589.2	14.7%	140-150	0.2	0%
60-70	495.2	12.4%	150-160	0.2	0%
70-80	356.3	8.9%	160-170	0.1	0%
80-90	210.1	5.2%	170-180	0.0	0%

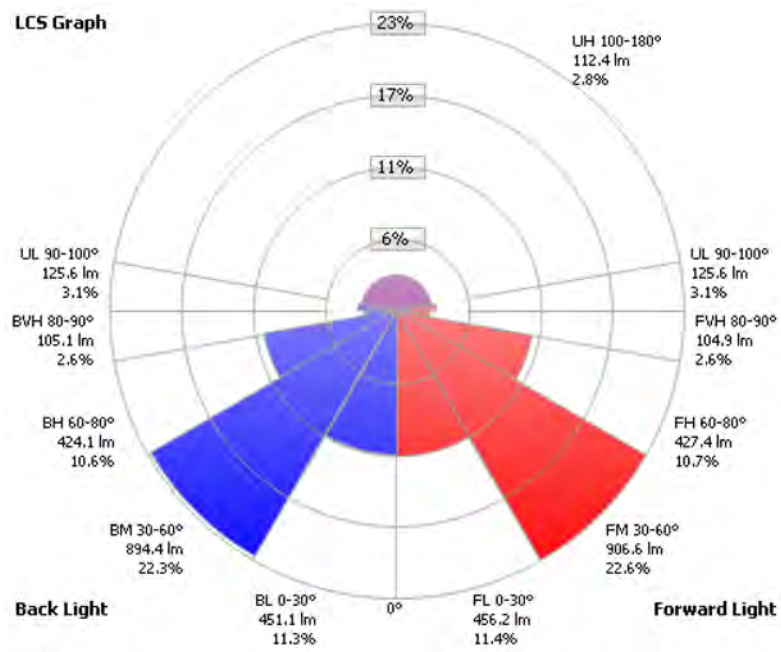
Roadway Summary

Distribution: TYPE II, VERY SHORT			
Max Cd, 90 Deg Vert:	238.9		
Max Cd, 80 to <90 Deg:	359.9		
	Lumens	% Lamp	
Downward Street Side:	1,895.1	47.3%	
Downward House Side:	1,874.7	46.8%	
Downward Total:	3,769.8	94.1%	
Upward Street Side:	118.4	3%	
Upward House Side:	119.6	3%	
Upward Total:	238.0	5.9%	
Total Lumens:	4,007.8	100%	

LCS Table

BUG Rating	B1 - U3 - G2	
Forward Light	Lumens	Lumens %
Low(0-30):	456.2	11.4%
Medium(30-60):	906.6	22.6%
High(60-80):	427.4	10.7%
Very High(80-90):	104.9	2.6%
Back Light		
Low(0-30):	451.1	11.3%
Medium(30-60):	894.4	22.3%
High(60-80):	424.1	10.6%
Very High(80-90):	105.1	2.6%
Uplight		
Low(90-100):	125.6	3.1%
High(100-180):	112.4	2.8%
Trapped Light:	0.000	0%

LCS Graph



Back Light

Forward Light

Scale = Max LCS %

Trapped Light: 0 lm, 0%

Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152	1152
5	1142	1169	1137	1144	1145	1128	1130	1136	1161	1140	1145	1159	1147	1162	1169	1154	1142
10	1130	1155	1128	1133	1135	1117	1117	1122	1145	1126	1130	1146	1134	1147	1155	1142	1130
15	1108	1134	1110	1116	1118	1099	1097	1102	1121	1104	1109	1125	1112	1126	1135	1121	1108
20	1077	1104	1084	1089	1095	1074	1070	1072	1088	1073	1081	1097	1086	1096	1106	1091	1077
25	1039	1061	1051	1057	1064	1042	1034	1030	1046	1028	1042	1059	1051	1061	1067	1052	1039
30	985	1008	1004	1013	1022	1002	987	978	991	975	992	1013	1007	1016	1015	1001	985
35	918	946	943	959	972	947	930	914	921	913	932	959	955	961	953	933	918
40	846	874	880	901	919	891	865	841	847	840	867	900	899	898	887	860	846
45	768	793	812	840	859	832	800	765	767	765	796	836	841	837	816	784	768
50	681	713	737	777	797	767	730	687	684	687	724	771	777	772	744	706	681
55	595	628	664	709	731	702	656	603	592	601	652	703	711	704	668	619	595
60	504	537	587	637	664	634	583	520	503	518	573	629	644	630	588	533	504
65	411	450	511	563	588	562	508	438	406	435	499	556	569	557	510	446	411
70	311	362	432	485	514	485	429	354	313	347	422	481	496	477	431	357	311
75	216	271	353	407	438	408	353	268	219	264	342	401	420	401	348	271	216
80	126	191	277	334	360	335	278	192	127	187	267	327	345	327	271	190	126
85	51	122	205	262	293	264	207	124	54	119	200	260	279	257	203	121	51
90	15	74	156	212	239	214	158	76	15	71	149	207	227	208	153	75	15
95	12	51	125	179	203	182	129	52	12	49	121	174	194	175	123	52	12
100	10	31	99	147	170	150	101	34	10	31	95	143	160	145	97	32	10
105	7	14	73	117	137	120	75	17	8	14	70	113	130	114	71	15	7
110	6	5	48	88	105	90	52	6	6	6	47	86	99	86	46	5	6
115	4	3	25	61	76	63	28	4	5	4	24	59	71	59	24	3	4
120	2	2	6	35	49	36	8	2	3	2	6	33	44	32	4	2	2
125	2	1	0	13	22	14	0	2	2	2	0	11	19	10	0	1	2
130	1	1	0	0	1	0	0	1	2	1	0	0	0	0	0	0	1
135	1	1	0	0	0	0	0	1	2	1	0	0	0	0	0	0	1
140	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	0	2
145	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
150	2	0	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
155	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
160	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
165	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
170	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
175	2	1	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2
180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

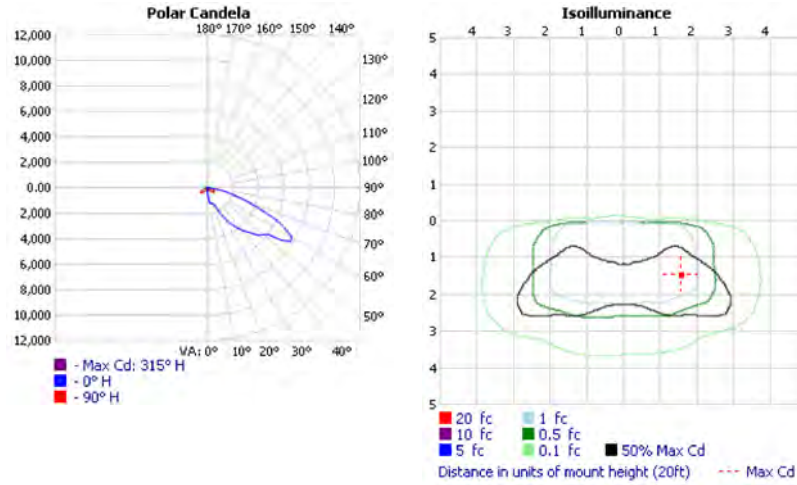
Type J1/BLC-E



UTDO R PH TO TRIC R PORT
CATALOG: DSX0.4.LA164.BLC.EGS (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 222044 - SUM23016
Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
Test Date: 20 Jul 2023
Catalog: DSX0.4.LA164.BLC.EGS (TZ)
Description: D-Series 0 - Area luminaire
Lamp Catalog: LA164
Lamp: LED C.16000 Lumens
Lamp Output: Total luminaire Lumens: 10498.6, **absolute photometry ***
Input Wattage: 114
Luminous Opening: Rectangle (L: 7.68", W: 11.81")
Max Cd: 11,218.4 at Horizontal: 315°, Vertical: 65°
Roadway Class: SHORT, TYPE III

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.
*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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ISF 222044 - SUM23016
VISUAL PHOTOMETRI TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	572.4	5.5%
0-40	1,401.2	13.3%
0-60	5,528.0	52.7%
60-90	4,926.4	46.9%
70-100	1,698.9	16.2%
90-120	21.8	0.2%
0-90	10,454.4	99.6%
90-180	44.2	0.4%
0-180	10,498.7	100%

Roadway Summary

Distribution:	TYPE III, SHORT	
Max Cd, 90 Deg Vert:	25.7	
Max Cd, 80 to <90 Deg:	1,751.9	
	Lumens	% Lamp
Downward Street Side:	10,401.4	99.1%
Downward House Side:	51.6	0.5%
Downward Total:	10,453.0	99.6%
Upward Street Side:	19.6	0.2%
Upward House Side:	24.6	0.2%
Upward Total:	44.2	0.4%
Total Lumens:	10,497.2	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	38.9	0.4%	90-100	6.9	0.1%
10-20	165.1	1.6%	100-110	7.7	0.1%
20-30	368.4	3.5%	110-120	7.3	0.1%
30-40	828.8	7.9%	120-130	6.3	0.1%
40-50	1,526.3	14.5%	130-140	5.5	0.1%
50-60	2,600.5	24.8%	140-150	4.6	0%
60-70	3,234.4	30.8%	150-160	3.4	0%
70-80	1,607.7	15.3%	160-170	2.0	0%
80-90	84.3	0.8%	170-180	0.6	0%

LCS Table

BUG Rating

Forward Light	B0 - U2 - G2	Lumens	Lumens %
Low(0-30):	555.8	5.3%	
Medium(30-60):	4,930.9	47%	
High(60-80):	4,833.1	46%	
Very High(80-90):	81.6	0.8%	

Back Light

Low(0-30):	16.0	0.2%
Medium(30-60):	23.3	0.2%
High(60-80):	11.0	0.1%
Very High(80-90):	1.4	0%

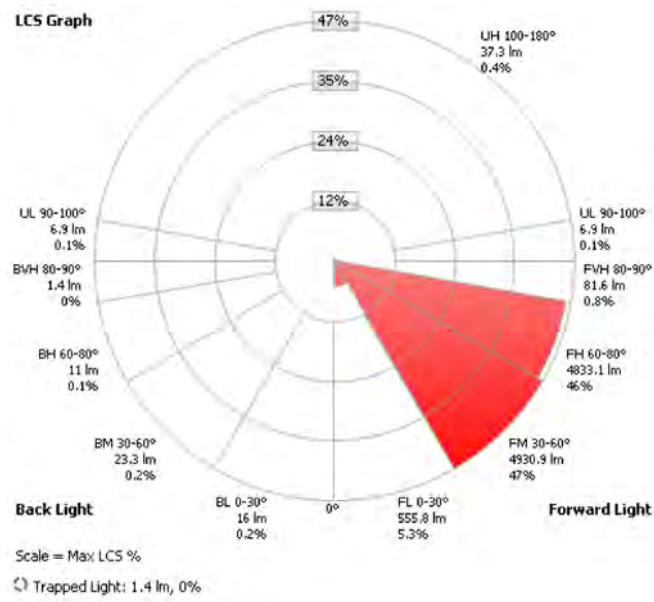
Uplight

Low(90-100):	6.9	0.1%
High(100-180):	37.3	0.4%

Trapped Light:

1.4	0%
-----	----

LCS Graph



	0	15	25	35	45	55	65	75	85	90	105	115	125	135	145	155	165	175	180	195	205	215	225	235	245	255	265	275	285	295	305	
0	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	
5	863	847	794	705	643	522	404	288	193	159	110	98	91	85	81	76	75	75	79	85	91	96	104	114	122	134	159	206	298	412	541	
10	1232	1218	1214	1198	1173	1016	797	516	247	159	91	75	57	45	37	32	32	32	33	39	47	53	65	79	98	118	145	259	516	813	1050	
15	1297	1279	1277	1257	1269	1275	1167	771	322	161	72	49	29	17	8	2	2	4	4	12	16	26	35	51	72	102	135	339	791	1191	1331	
20	1393	1364	1358	1336	1362	1352	1365	1057	424	168	55	27	8	0	0	0	0	0	0	4	6	8	14	27	49	81	128	443	1099	1440	1448	
25	1954	1817	1628	1482	1476	1473	1482	1385	557	180	39	10	0	0	0	0	0	0	0	4	6	6	8	10	32	63	122	591	1472	1634	1633	
30	2788	2633	2368	2077	1716	1638	1719	1715	745	210	23	0	0	0	0	0	0	0	2	4	4	6	6	16	47	114	843	1988	2003	1876		
35	3616	3430	3159	2762	2407	1942	1985	2105	1007	261	10	0	0	0	0	0	0	0	0	0	4	4	4	4	6	32	104	1177	2627	2423	2243	
40	4332	4128	3883	3542	3094	2649	2329	2595	1346	344	0	0	0	0	0	0	0	0	0	0	2	2	4	4	6	20	88	1552	3274	2943	3055	
45	5062	4852	4569	4230	3890	3361	2879	3080	1732	439	0	0	0	0	0	0	0	0	0	0	2	4	6	8	14	75	1997	3861	3591	3861		
50	5713	5621	5507	5025	4703	4322	3657	3673	2262	547	0	0	0	0	0	0	0	0	0	0	0	0	4	6	10	10	59	2521	4422	4407	4911	
55	7177	6999	6706	6457	6117	5664	4573	4352	2811	647	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	10	10	45	3055	4972	5229	6084
60	7640	7740	8311	8786	9069	7354	5124	4283	2727	603	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	10	29	2931	4803	5561	7607	
65	6126	6546	7863	9143	10652	7999	4934	4336	2690	594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	22	2680	4454	5099	7860	
70	3542	4258	5574	6638	8695	7102	4607	3779	2158	420	0	0	0	0	0	0	0	0	0	0	6	4	0	0	2	6	16	2358	4901	4856	6924	
75	1952	2136	2611	2525	3834	5172	3840	2541	1096	147	0	0	0	0	0	0	0	0	0	0	4	6	8	6	4	6	14					

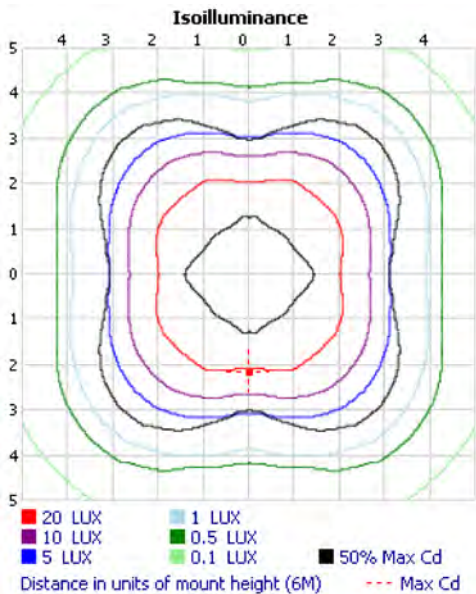
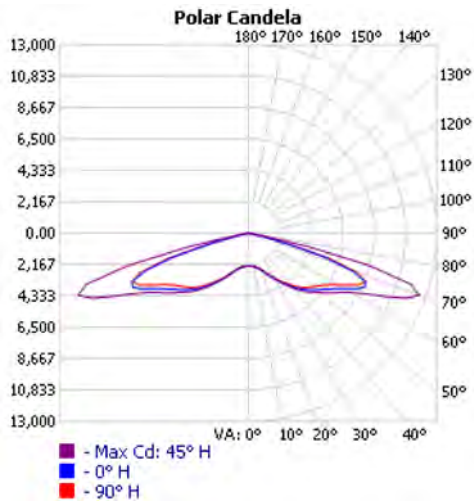
Type K1



UTDO R PH TO TR C R PORT
CATALOG: DSX1.2.LA304.SY

Manufacturer: HOLOPHANE EUROPE LIMITED
Test #: ISF 34054P23 - SUM19026
Test Lab: ACUITY BRANDS LIGHTING - CONYERS L B - SC LED PHOTOMETRY
Test Date: 3/23/2017
Catalog: DSX1.2.LA304.SY
Description: D-Series 1 Luminaire
Lamp Catalog: LA304
Lamp: LED C.30000LM-4000K
Lamp Output: Total luminaire Lumens: 31491.7, absolute photometry *
Input Wattage: 286
Luminous Opening: Rectangle (L: 0.24M, W: 0.28M)
Max Cd: 12,528.9 at Horizontal: 45°, Vertical: 70°
Roadway Class: Type VS

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.
*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

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ISF 34054P23 - SUM19026
VISUAL PHOTOMETRIC TOOL

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	2,404.1	7.6%
0-40	5,082.8	16.1%
0-60	15,738.7	50%
60-90	15,753.0	50%
70-100	6,142.2	19.5%
90-120	0.000	0%
0-90	31,491.7	100%
90-180	0.000	0%
0-180	31,491.7	100%

Lumens Per Zone

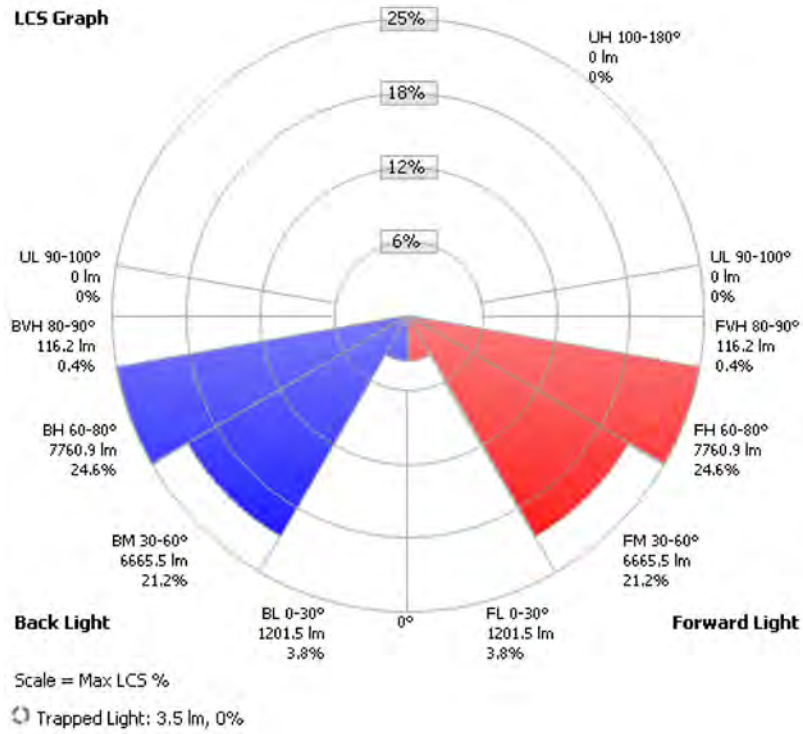
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	219.6	0.7%	90-100	0.000	0%
10-20	716.9	2.3%	100-110	0.000	0%
20-30	1,467.5	4.7%	110-120	0.000	0%
30-40	2,678.7	8.5%	120-130	0.000	0%
40-50	4,345.1	13.8%	130-140	0.000	0%
50-60	6,310.8	20.0%	140-150	0.000	0%
60-70	9,610.9	30.5%	150-160	0.000	0%
70-80	5,908.7	18.8%	160-170	0.000	0%
80-90	233.5	0.7%	170-180	0.000	0%

Roadway Summary

Distribution:	Type VS
Max Cd, 90 Deg Vert:	0.000
Max Cd, 80 to <90 Deg:	1,005.8
	Lumens % Lamp
Downward Street Side:	15,744.1 50%
Downward House Side:	15,744.1 50%
Downward Total:	31,488.2 100%
Upward Street Side:	0.000 0%
Upward House Side:	0.000 0%
Upward Total:	0.000 0%
Total Lumens:	31,488.2 100%

LCS Table

BUG Rating	B5 - U0 - G4
Forward Light	Lumens Lumens %
Low(0-30):	1,201.5 3.8%
Medium(30-60):	6,665.5 21.2%
High(60-80):	7,760.9 24.6%
Very High(80-90):	116.2 0.4%
Back Light	
Low(0-30):	1,201.5 3.8%
Medium(30-60):	6,665.5 21.2%
High(60-80):	7,760.9 24.6%
Very High(80-90):	116.2 0.4%
Uplight	
Low(90-100):	0.000 0%
High(100-180):	0.000 0%
Trapped Light:	3.5 0%



Candela Table - Type C

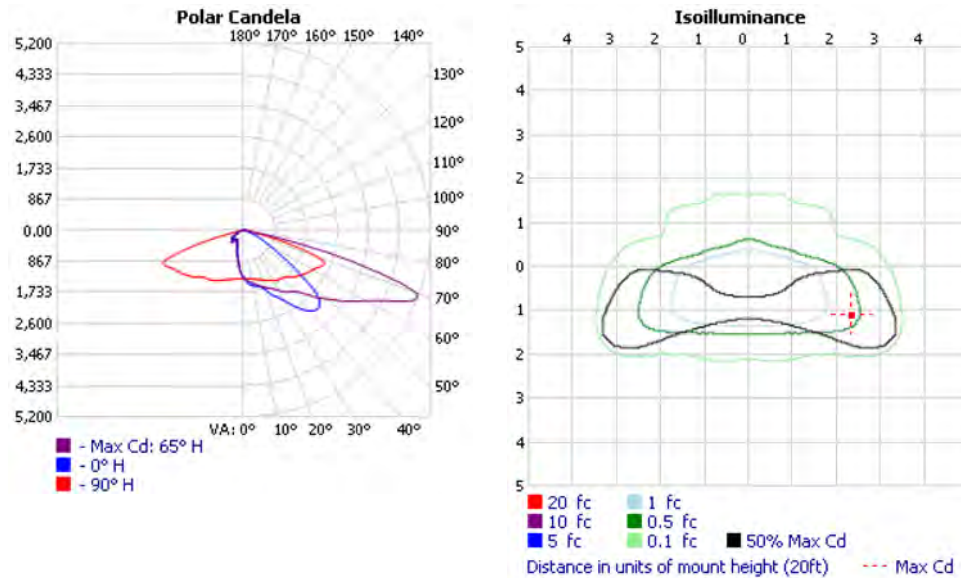
	0	5	15	25	32.5	35	45	55	65	75	85	90
0	2262	2262	2262	2262	2262	2262	2262	2262	2262	2262	2262	2262
5	2259	2272	2269	2272	2272	2277	2277	2282	2282	2285	2290	2290
10	2340	2340	2338	2331	2329	2328	2327	2337	2349	2359	2364	2364
15	2522	2497	2498	2497	2484	2479	2465	2467	2474	2484	2491	2491
20	2789	2743	2757	2783	2786	2767	2740	2723	2715	2725	2726	2721
25	3181	3076	3102	3118	3135	3163	3144	3132	3099	3099	3100	3094
30	3684	3524	3569	3635	3677	3679	3696	3680	3629	3590	3585	3576
35	4245	4063	4143	4236	4272	4299	4299	4294	4255	4175	4123	4100
40	4868	4706	4858	4980	5014	5029	5019	5063	4983	4843	4762	4730
45	5483	5348	5554	5714	5716	5726	5723	5762	5679	5483	5329	5282
50	6092	5959	6293	6492	6414	6407	6374	6439	6342	6058	5815	5759
55	6719	6554	7012	7319	7249	7178	7160	7224	7078	6668	6351	6262
60	7634	7431	8122	8524	8326	8266	8210	8345	8189	7688	7229	7117
65	8822	8744	9894	10683	10309	10258	10311	10574	10293	9314	8577	8428
70	7583	7702	9652	11773	12401	12427	12529	12353	11173	9310	8201	8004
75	2568	3022	4571	6627	7883	8445	8677	7666	5857	3850	2980	2880
80	328	297	406	609	859	1006	989	947	714	426	317	308
85	135	120	167	180	181	202	222	221	186	123	92	89
90	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0

UTDO R PH TO TR C R PORT

CATALOG: VMXII.1.L 074.V2.X2L2.W046 (TZ)

Manufacturer: HOLOPHANE EUROPE LIMITED
 Test #: B22110 - B22116 - SUM22015
 Test Lab: HOLOPHANE EUROPE LIMITED PHOTOMETRI L B
 Test Date: 5 Jun 2023
 Catalog: VMXII.1.LA074.V2.X2L2.W046 (TZ)
 Description: VMXII Streetlighting luminaire
 Lamp Catalog: LA074
 Lamp: LED C.7000 Lumens
 Lamp Output: Total luminaire Lumens: 6986.9, absolute photometry *
 Input Wattage: 46
 Luminous Opening: Rectangle (L: 23.58", W: 13.62")
 Max Cd: 5,181.6 at Horizontal: 65°, Vertical: 68.75°
 Roadway Class: MEDIUM, TYPE III

No
Photo
Available



*Test based on absolute photometry where lamp lumens=lumens total.

*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

Visual Photometric Tool 1.2.46 copyright 2023, Acuity Brands Lighting.

This Photometric report has been generated using methods recommended by the IESNA. Calculations are based on Photometric data provided by the manufacturer, and the accuracy of this Photometric report is dependent on the accuracy of the data provided. End-user environment and application (including, but not limited to, voltage variation and dirt accumulation) can cause actual Photometric performance to differ from the performance calculated using the data provided by the manufacturer. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Acuity Brands Lighting be responsible for any loss resulting from any use of this report.

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,094.4	15.7%
0-40	2,003.9	28.7%
0-60	4,843.3	69.3%
60-90	2,143.6	30.7%
70-100	728.9	10.4%
90-120	0.000	0%
0-90	6,986.9	100%
90-180	0.000	0%
0-180	6,986.9	100%

Lumens Per Zone

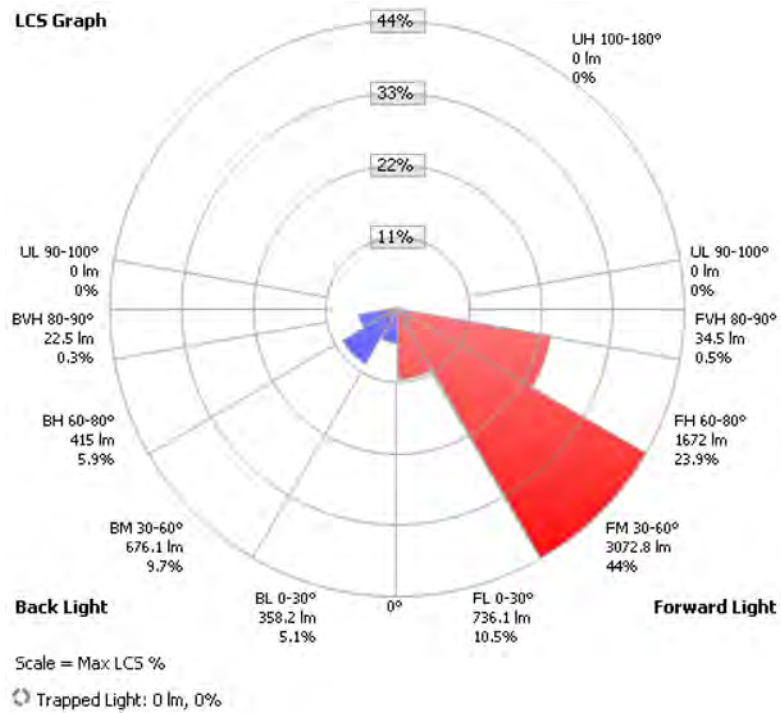
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	126.1	1.8%	90-100	0.000	0%
10-20	360.4	5.2%	100-110	0.000	0%
20-30	607.9	8.7%	110-120	0.000	0%
30-40	909.5	13.0%	120-130	0.000	0%
40-50	1,309.7	18.7%	130-140	0.000	0%
50-60	1,529.7	21.9%	140-150	0.000	0%
60-70	1,414.7	20.2%	150-160	0.000	0%
70-80	671.8	9.6%	160-170	0.000	0%
80-90	57.1	0.8%	170-180	0.000	0%

Roadway Summary

Distribution:	TYPE III, MEDIUM	
Max Cd, 90 Deg Vert:	0.000	
Max Cd, 80 to <90 Deg:	382.8	
	Lumens	% Lamp
Downward Street Side:	5,515.4	78.9%
Downward House Side:	1,471.8	21.1%
Downward Total:	6,987.2	100%
Upward Street Side:	0.000	0%
Upward House Side:	0.000	0%
Upward Total:	0.000	0%
Total Lumens:	6,987.2	100%

LCS Table

BUG Rating	B1 - U0 - G1	
Forward Light	Lumens	Lumens %
Low(0-30):	736.1	10.5%
Medium(30-60):	3,072.8	44%
High(60-80):	1,672.0	23.9%
Very High(80-90):	34.5	0.5%
Back Light	Lumens	Lumens %
Low(0-30):	358.2	5.1%
Medium(30-60):	676.1	9.7%
High(60-80):	415.0	5.9%
Very High(80-90):	22.5	0.3%
Uplight	Lumens	Lumens %
Low(90-100):	0.000	0%
High(100-180):	0.000	0%
Trapped Light:	0.000	0%

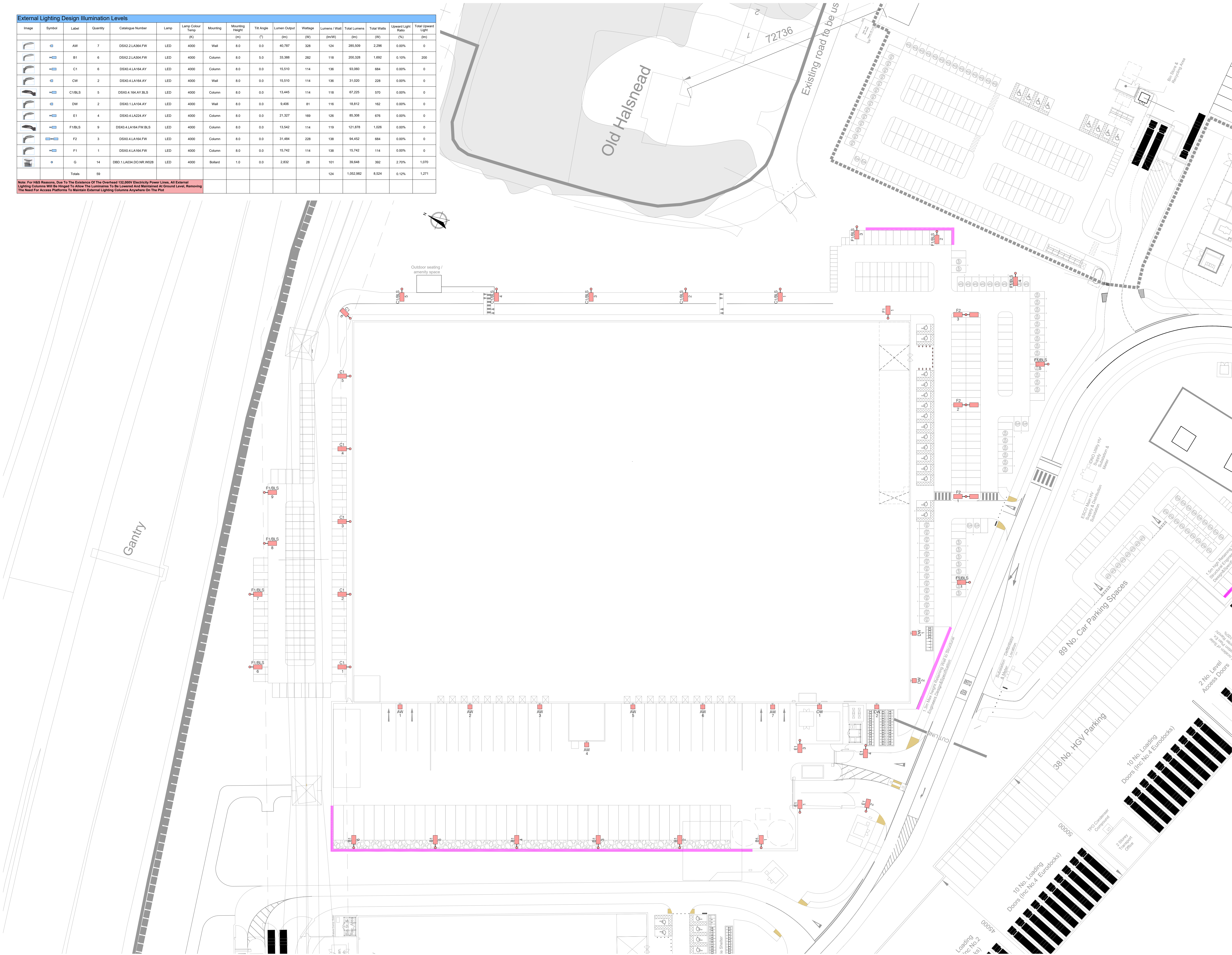


Candela Table - Type C

	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312	1312
5	1494	1498	1495	1492	1486	1470	1447	1421	1395	1364	1330	1297	1261	1224	1190	1160	1140	1124	1121
10	1571	1571	1567	1559	1551	1541	1519	1484	1437	1380	1315	1237	1151	1063	989	933	893	869	860
15	1622	1624	1622	1617	1614	1610	1604	1578	1515	1428	1323	1184	1040	911	820	758	716	690	682
20	1779	1780	1775	1765	1751	1731	1704	1674	1602	1476	1319	1116	921	773	678	612	568	541	528
25	2031	2022	1997	1959	1920	1877	1827	1771	1695	1537	1313	1043	792	637	549	485	437	413	407
30	2286	2276	2244	2192	2121	2046	1980	1901	1820	1622	1310	953	668	522	433	380	362	348	341
35	2647	2628	2567	2469	2378	2258	2146	2041	1938	1684	1270	833	566	414	333	313	315	312	310
40	2939	2956	2947	2819	2635	2494	2316	2163	2031	1722	1183	702	486	319	278	305	344	380	380
45	2975	3052	3202	3264	3169	2904	2680	2451	2240	1844	1129	632	431	289	306	418	493	411	362
50	2440	2604	2988	3355	3615	3569	3129	2834	2513	1981	1061	581	388	323	474	518	405	376	358
55	1405	1567	2015	2712	3621	4111	3783	3208	2787	2107	985	520	404	447	567	421	440	444	408
60	779	884	1090	1568	2858	4135	4315	3556	3019	2209	945	498	494	587	440	360	374	298	255
65	469	565	688	841	1540	3438	4746	4263	3400	2378	1033	511	556	513	306	257	226	200	191
70	270	320	380	484	685	2162	4820	4631	3344	2148	1089	497	511	315	188	163	198	224	222
75	163	200	251	299	351	724	2234	2216	1460	903	650	374	347	207	105	103	177	161	147
80	61	73	100	141	158	140	347	380	226	106	120	175	167	116	46	52	67	37	33
85	28	21	18	35	37	47	58	63	51	30	45	63	75	41	29	22	34	47	55
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Image	Symbol	Label	Quantity	Catalogue Number	Lamp	Lamp Colour Temp	Mounting	Mounting Height	Tilt Angle	Lumen Output	Wattage	Lumens / Watt	Total Lumens	Total Watts	Upward Light Ratio	Total Upward Light
						(K)		(m)	(°)	(lm)	(W)	(lm/W)	(lm)	(W)	(%)	(lm)
		AW	7	DSX2.2.LA364.FW	LED	4000	Wall	8.0	0.0	40,787	328	124	285,500	2,206	0.00%	0
		B1	6	DSX2.2.LA304.FW	LED	4000	Column	8.0	5.0	33,388	282	118	200,328	1,692	0.10%	200
		C1	6	DSX0.4.LA164.AY	LED	4000	Column	8.0	0.0	15,510	114	136	93,060	884	0.00%	0
		CW	2	DSX0.4.LA164.AY	LED	4000	Wall	8.0	0.0	15,510	114	136	31,020	228	0.00%	0
		C1BLS	5	DSX0.4.164.AY.BLS	LED	4000	Column	8.0	0.0	13,445	114	118	67,225	570	0.00%	0
		DW	2	DSX0.1.LA104.AY	LED	4000	Wall	8.0	0.0	9,406	81	116	18,812	162	0.00%	0
		E1	4	DSX0.4.LA224.AY	LED	4000	Column	8.0	0.0	21,327	169	126	85,308	676	0.00%	0
		F1BLS	9	DSX0.4.LA164.FW.BLS	LED	4000	Column	8.0	0.0	13,542	114	119	121,878	1,026	0.00%	0
		F2	3	DSX0.4.LA164.FW	LED	4000	Column	8.0	0.0	31,484	228	138	94,452	684	0.00%	0
		F1	1	DSX0.4.LA164.FW	LED	4000	Column	8.0	0.0	15,742	114	138	15,742	114	0.00%	0
		G	14	DBD.1.LA004.DO.NR.W028	LED	4000	Boiled	1.0	0.0	2,832	28	101	39,648	392	2.70%	1,070
		Totals	59									124	1,052,982	8,524	0.12%	1,271

Note: For H45 Reasons, Due To The Existence Of The Overhead 132,000V Electricity Power Lines, All External Lighting Columns Will Be Hung To Allow The Luminaires To Be Lowered And Maintained At Ground Level, Removing The Need For Access Platforms To Maintain External Lighting Columns Anywhere On The Plot



1:50 TITLE BLOCK BORDER

External Lighting

Key

-  Column Mounted Luminaire
-  Wall Mounted Luminaire
-  Lighting Bollard

2	26 02 24	Updated To Suit Architects Masterplan Drawing Number 22605-UMC-XXXX-SI-DR-A-0671-Illustrative Masterplan-P09 FOR APPROVALS	TRF	JW
1	28 11 23	FOR APPROVALS	TRF	JW
Issue	Date	Description		Drawn by Checked by



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TRITAX SYMMETRY
 A TRITAX BIG BOX COMPANY

Symmetry Park
Merseyside

Design Stage

Planning

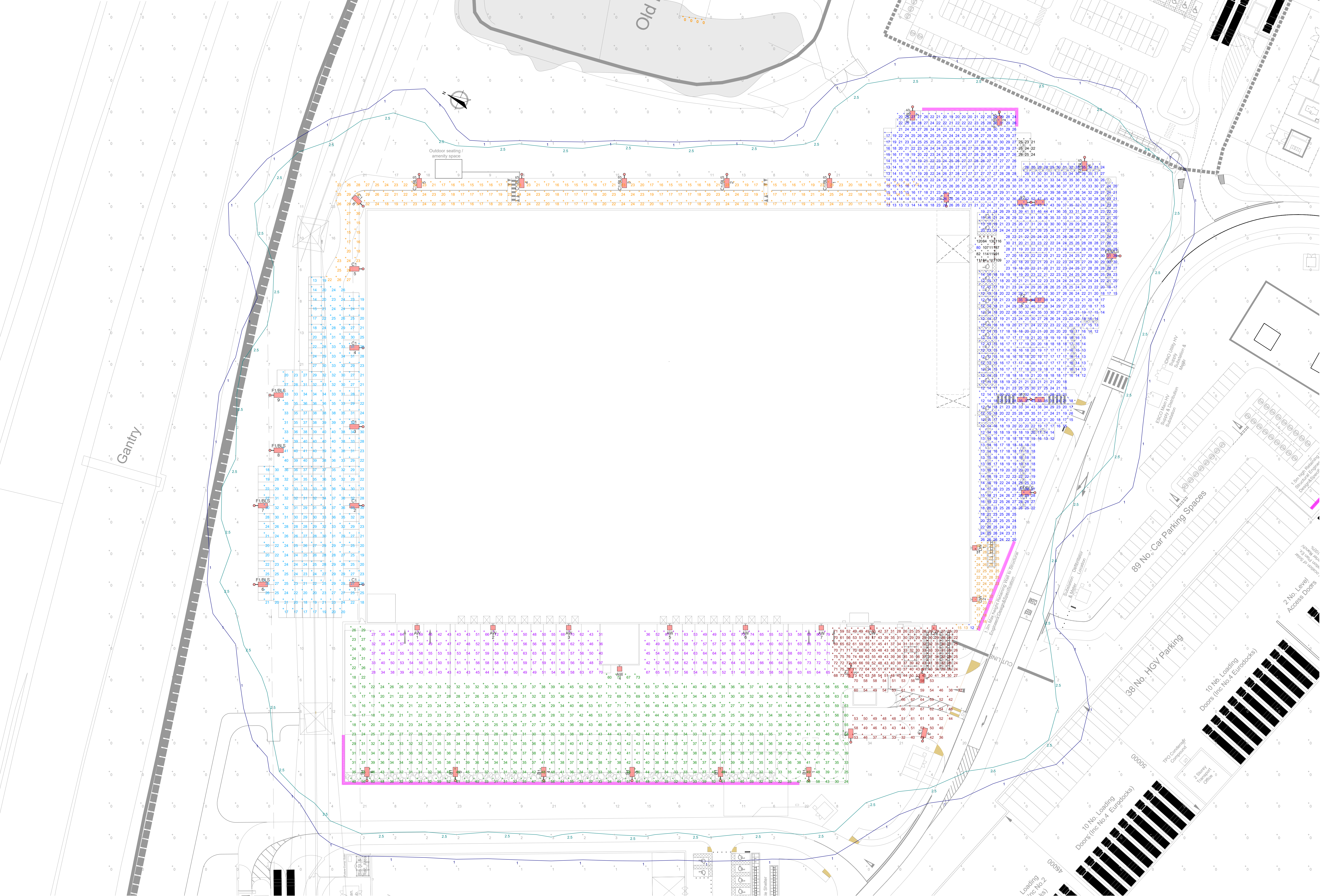
Site Plan - Unit 03
Electrical Services
External Lighting Design Layout

HAM Project Number 4032 Scale 1:400

02514 - HAN - PL - 03 - DR - E - 00635

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External Lighting - Statistics							
Description	Symbol	Design Criteria			Design Results		
		E _a Average Maintained Illuminance (lx)	E _{min} Minimum Illuminance (lx)	U _o Uniformity (%)	E _a Average Maintained Illuminance (lx)	E _{min} Minimum Illuminance (lx)	U _o Uniformity (%)
Car Park (West)	+	20	8	40	26	13	46
Cycle Store	+	20	8	40	45	20	44
Office Main Entrance	+	50	20	40	104	60	77
HGV Entrance / Gatehouse	+	50	20	40	52	32	62
Loading Bays	+	50	20	40	56	27	46
Footway	+	10	4	40	24	12	50
Service Road	+	20	8	40	20	14	70
Service Yard	+	25	10	40	37	15	41
Vertical Building (Old Halshead)	+	0			0	0	
Car Park (East)	+	20	8	40	23	12	52
Spill	+	0			1	0	



1:50 TITLE BLOCK BORDER

External Lighting

Key

Column Mounted Luminaire

Wall Mounted Luminaire

Lighting Bollard

26

Updated To Suit Architects Masterplan Drawing Number 02514-000000-01 DPA-0071 Illustrative Masterplan-P09

FOR APPROVALS

24

FOR APPROVALS

1

11

23

Description

Author

Checker

Hannan Associates

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TRITAX SYMMETRY

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Symmetry Park

Merseyside

Site Plan - Unit 03

Electrical Services

External Lighting Design Illumination Plots

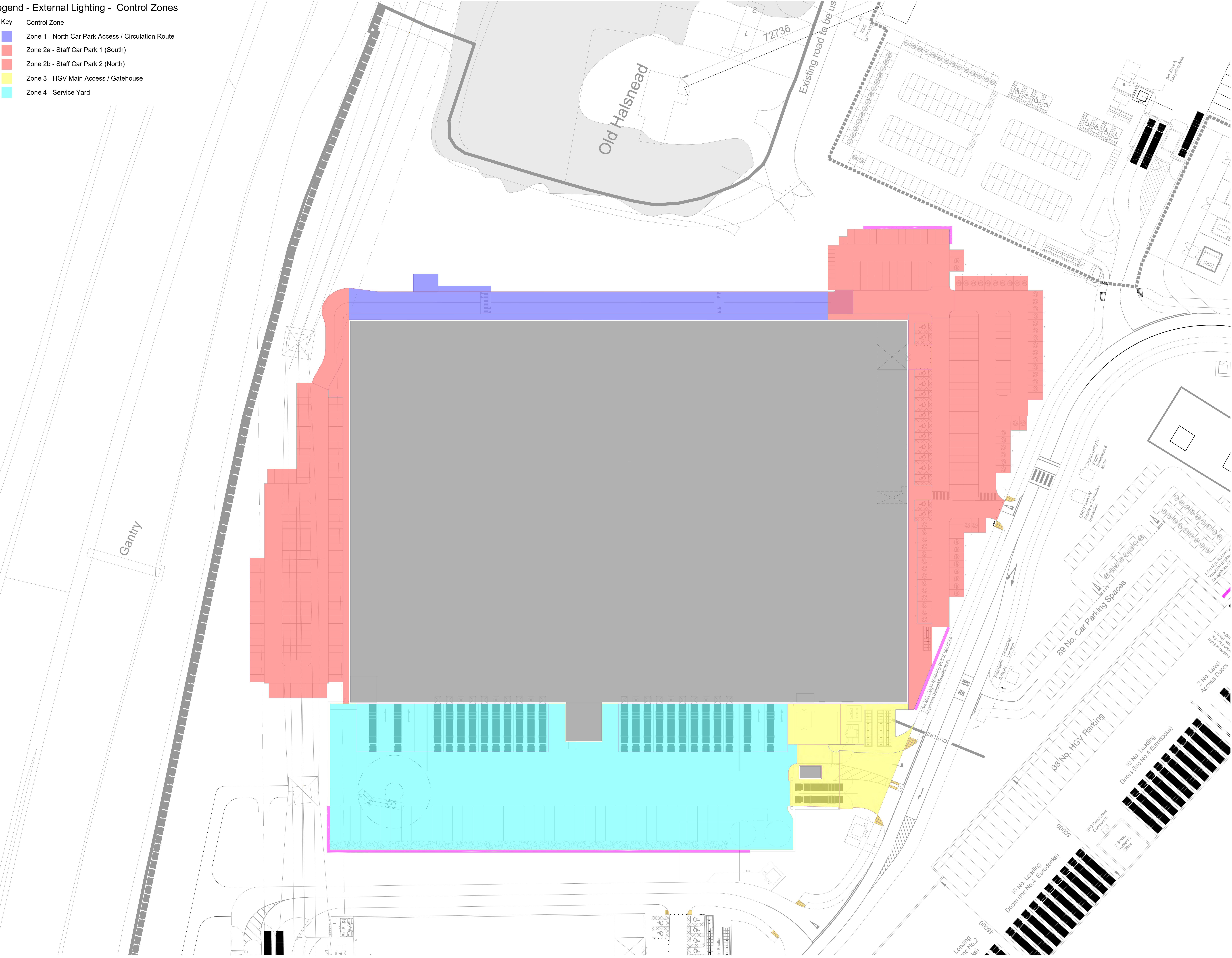
4032

1:400

02514 - HAN - PL - 03 - DR - E - 006361

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Key	Control Zone
	Zone 1 - North Car Park Access / Circulation Routes
	Zone 2a - Staff Car Park 1 (South)
	Zone 2b - Staff Car Park 2 (North)
	Zone 3 - HGV Main Access / Gatehouse
	Zone 4 - Service Yard



26	Updated To Suit Architects Masterplan Drawing Number 02		TJR	JW
25	22000 - Issue 3000-SI DR-A-0671-Illustrative Masterplan P09 FOR APPROVALS			
1	FOR APPROVALS		TJR	JW
11				
11	FOR APPROVALS			
23	Description			
23				





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TRITAX SYMMETRY

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Project

Symmetry Park
Merseyside

Design Stage

Planning

Delivering Title

Site Plan - Unit 03
Electrical Services
External Lighting Control Strategy

10% Project Number

4032

Scale: 1:10

1:400

Delivering Format

02514 - HAN - PL - 03 - DR - E - 006371

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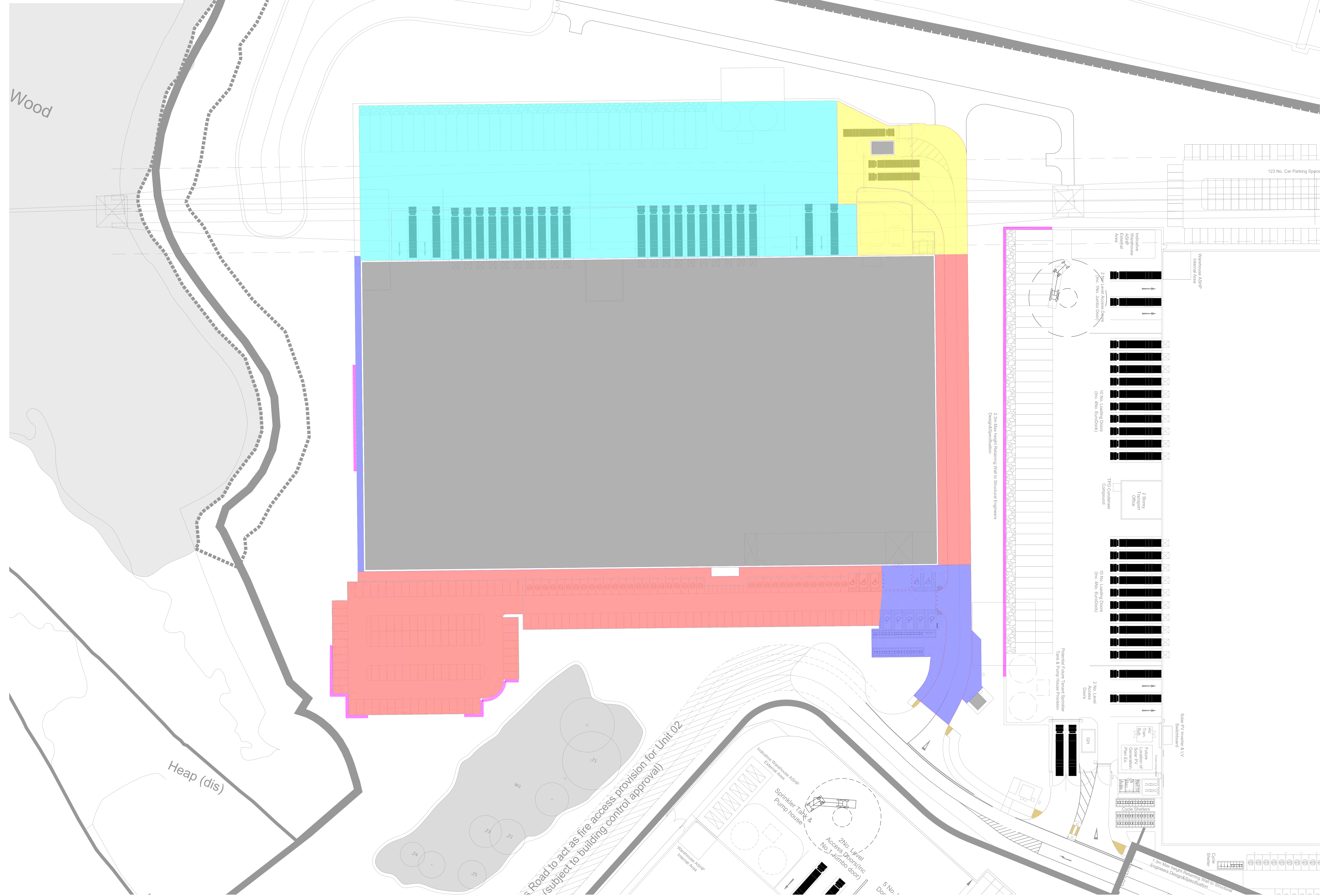
Table 2: Obtrusive Light Impacts – Environmental Zone E2		
Low District Brightness Areas – Rural or Small Village Locations		
	Pre-Curfew	Post-Curfew
Light On Properties Ev (x)	5.0	1.0
Luminaire Intensity I (cd)	7,500	500
Upward Light Ratio R_{UL} (%)		5
Luminance L_b Building Facade (cd/m^2)		5
Luminance L_s Signs (cd/m^2)		400





Legend - External Lighting - Control Zones

- | Key | Control Zone |
|---|---|
|  | Zone 1a - Main Entrance |
|  | Zone 1b - Building West Side Access / Circulation Route |
|  | Zone 2a - Staff Car Park |
|  | Zone 2b - Service Yard Access Road |
|  | Zone 3 - HGV Main Access / Gatehouse |
|  | Zone 4 - Service Yard |



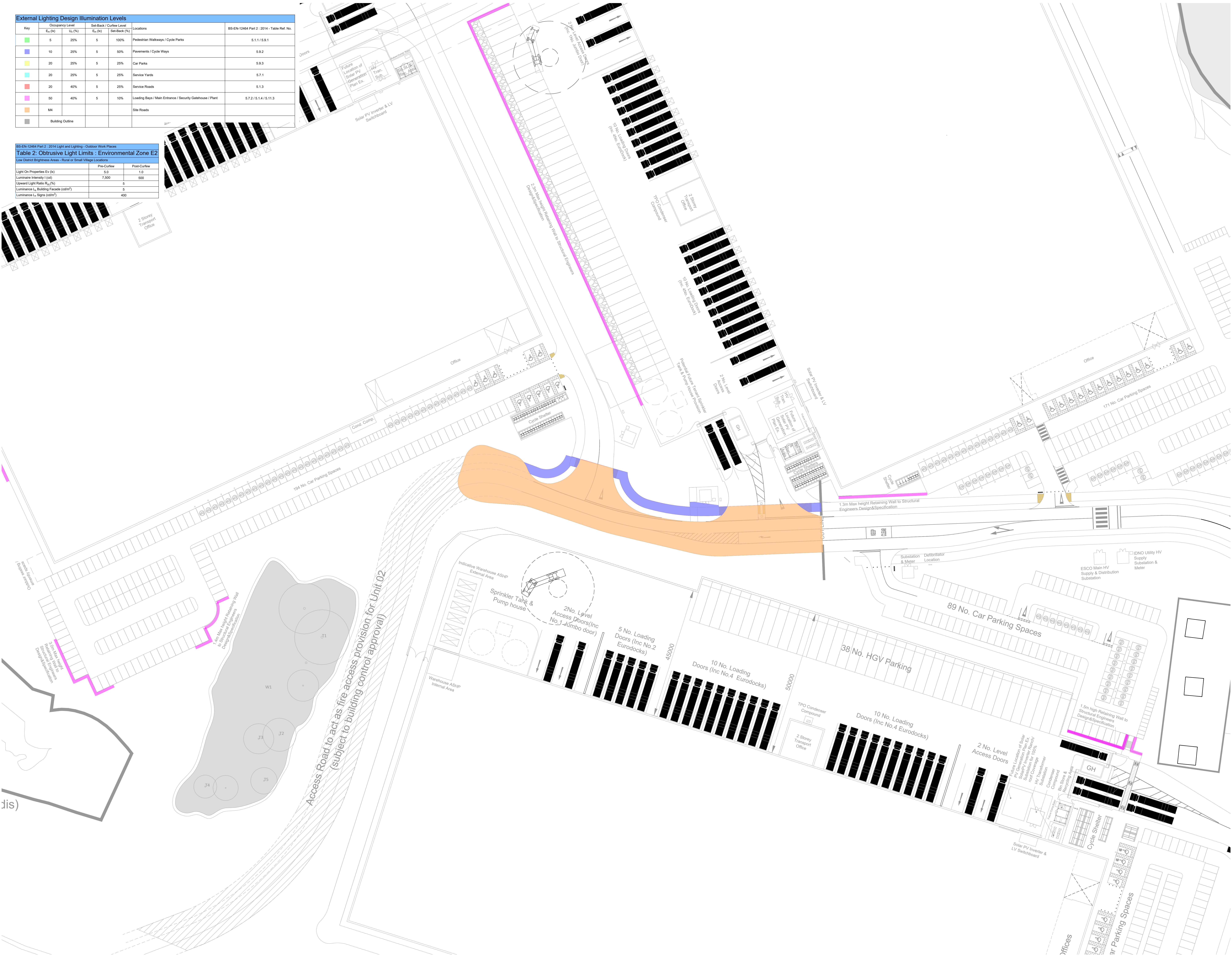
External Lighting Design Illumination Levels					
Key	Occupancy Level E _{av} (lx)	U _a (%)	Set-Back / Curb Level E _{av} (lx)	Set-Back (%)	Locations
	5	25%	5	100%	Pedestrian Walkways / Cycle Parks
	10	25%	5	50%	Pavements / Cycle Ways
	20	25%	5	25%	Car Parks
	20	25%	5	25%	Service Yards
	20	40%	5	25%	Service Roads
	50	40%	5	10%	Loading Bays / Main Entrance / Security Gatehouse / Plant
	M4				Site Roads
	Building Outline				

BS-EN-12664 Part 2: 2014 Light and Lighting - Outdoor Work Places

Table 2: Obtrusive Light Limits : Environmental Zone E2

Low District Brightness Areas - Rural or Small Village Locations

	Pre-Curbew	Post-Curbew
Light On Properties E _v (lx)	5.0	1.0
Luminaire Intensity I (cd)	7.500	500
Upward Light Ratio R _u (%)	5	
Luminance L _b Building Facade (cd/m²)		400
Luminance L _s Signs (cd/m²)		



This drawing was produced in AutoCAD. DO NOT change manually. DO NOT scale from this drawing. The contractor must verify all size dimensions.

2	26	Updated To Sul Architects Masterplan Drawing Number	TRF	JW
03	03	2005-UMC-2000-SI-DPA-007-Illustrative Masterplan-P08		
24	24	FOR APPROVALS		
1	11	23	TRF	JW
11	23			
11	23	Description	TRF	JW

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Project: Symmetry Park
Merseyside

Site Name: Planning

Drawing Title: Site Plan - Phase 3 Road R3
Electrical Services
External Lighting Design Strategy

Draw Project Number: 4032
Scale: 1:400

Drawing Number: 02514 - HAN - PL - R3 - DR - E - 006341

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External Lighting Design Illumination Levels																
Image	Symbol	Label	Quantity	Catalogue Number	Lamp	Lamp Colour Temp (K)	Mounting	Mounting Height (m)	Tilt Angle (°)	Lumen Output (lm)	Wattage (W)	Lumens / Watt (lm/W)	Total Lumens (lm)	Total Watts (W)	Upward Light Ratio (%)	Total Upward Light (lm)
	➡	RW1	8	VMXL1.1LA074.V2.XL2.W046	LED	4000	Column	8.0	0.0	6,987	46	152	55,896	368	0.00%	0
		Totals	8									152	55,896	368	0.00%	0



This drawing was produced in AutoCAD. DO NOT change manually. DO NOT scale from this drawing. The contractor must verify all dimensions.

2	26	Updated To Sul Architects Masterplan Drawing Number	TRF	JW
03	26	22055-UMC-2000-SI-DR-A-0071-Illustrative Masterplan-Prop		
24		FOR APPROVALS		
1	11	23	TRF	JW
11	23			
23		Description	Issue	Prepared

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A TRITAX BIG BOX COMPANY

Project: Symmetry Park
Merseyside

Drawn By: Planning

Site Plan - Phase 3 Road R3
Electrical Services
External Lighting Design Layout

Drawn Project Number: 4032 Scale: 1:400

Drawing Number: 02514 - HAN - PL - R3 - DR - E - 006351

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Legend - External Lighting - Control Zones

- Key
- Control Zone
- Zone 5 - Site Landlord's Phase 3 Access Spine Road



This drawing was produced in AutoCAD, DO NOT change manually.
DO NOT scale from this drawing. The controller must verify all dimensions.

2	26	Updated To Sul Architects Masterplan Drawing Number	TRF	JW
03	03	23055-UMC-0000-SI-CPA-A-0071-Illustrative Masterplan-P08		
24	24	FOR APPROVALS		
1	11	FOR APPROVALS	TRF	JW
23	23			
04	04	Description	Drawn	Checked

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TRITAX SYMMETRY

A TRITAX BIG BOX COMPANY

Symmetry Park
Merseyside

Planning

Site Plan - Road R3
Electrical Services
External Lighting Control Strategy

4032

Scale @ A3

1:400

02514 - HAN - PL - R3 - DR - E - 006371

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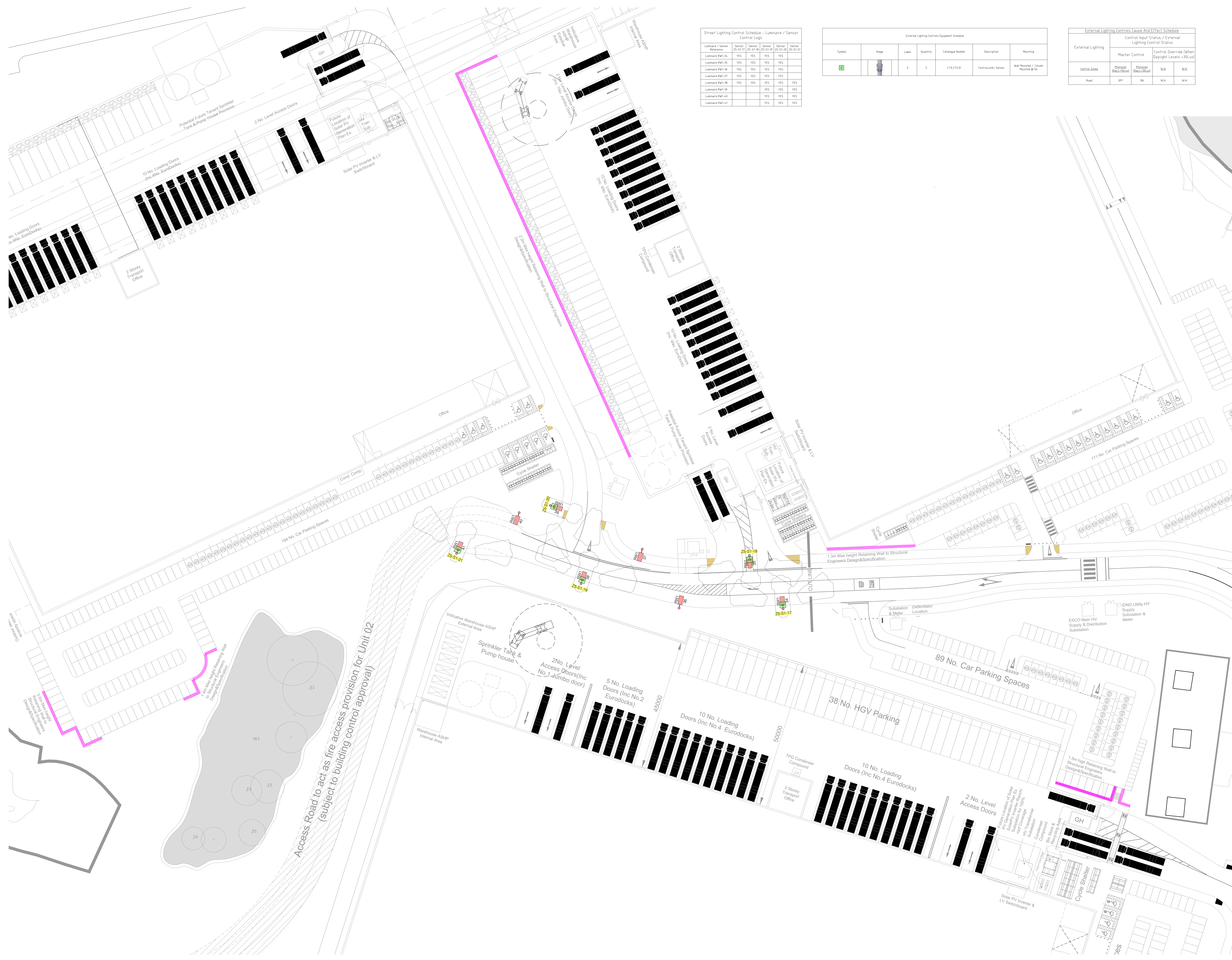
- Photocell Control To Automatically Switch Road Lighting 'ON' As Daylighting Falls Below 30lux
- Photocell Control To Automatically Switch Road External Lighting When Daylighting Rises Above 50lux
- Time Control To Automatically 'DIM' The Lighting Levels Within Control Zones To Curb Levels Between 23:00hrs and 07:00hrs During 02514-HAN-PL-R3-DR-E-006341 For Lighting Design Drawing Occupancy Hours and Curfew Hours)
- During the Curfew Hours any Motion Sensor Activation Within Control Zones Will Automatically 'RISE' The Associated Control External Lighting Luminaires To Occupancy Level Over A Period of Seconds and Will Remain At Occupancy Level For 255 Seconds
- The Last Activation On The Associated Motion Sensors
- The Respective Luminaires Will Then 'DIM' Back Down To The Levels Over A Period Of 5 Seconds



Luminaire / Sensor Reference	Sensor 25-51-17	Sensor 25-51-18	Sensor 25-51-19	Sensor 25-51-20	Sensor 25-51-21
Luminaire RWI-34	YES	YES	YES	YES	
Luminaire RWI-35	YES	YES	YES	YES	
Luminaire RWI-36	YES	YES	YES	YES	
Luminaire RWI-37	YES	YES	YES	YES	
Luminaire RWI-38	YES	YES	YES	YES	YES
Luminaire RWI-39			YES	YES	YES
Luminaire RWI-40			YES	YES	YES
Luminaire RWI-41			YES	YES	YES

External Lighting Controls Equipment Schedule						
Symbol	Image	Label	Quantity	Catalogue Number	Description	Mounting
		S	5	CTACTS-51	Control/ulcwr- Sensor	Wall Mounted / Column Mounted @ 5m

External Lighting Controls Cause And Effect Schedule				
External Lighting	Control Input Status / External Lighting Control Status			
	Master Control		Control Override (When Daylight Levels <30Lux)	
<u>Control Zones</u>	<u>PhotoCell</u> <u>(Day > 50 lux)</u>	<u>PhotoCell</u> <u>(Day > 50 lux)</u>	<u>N/A</u>	<u>N/A</u>
Road	OFF	ON	N/A	N/A



2	06 22 24	Updated To Suit Architects Masterplan Drawing Number 22005-UMC-XXXX-SI-DR-A-0671-Illustrative Masterplan-P09 FOR APPROVALS	TRF	JW
1	28 11 23	FOR APPROVALS	TRF	JW
Issue	Date	Description	Drawn	Checked



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Client **TRITAX SYMMETRY**
A TRITAX BIG BOX COMPANY

Project	Symmetry Park Merseyside
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Design Stage	Planning
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Drawing Title

Site Plan - Phase 3 Road R3
Electrical Services
External Lighting Controls Layout

MAN Project Number 4032 Scale: 1/4" = 1'-0"

Drawing Number
02514 - HAN - PL - R3 - DR - E - 006381

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