



Wallace Whittle

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## Athlone Public Realm Enhancement

Outline Lighting Narrative

12 March 2021

Proposal Prepared for:-





## Issue / Revision Record

Issue	Date	By	Checked	Comment
1	12.03.2021	MHB	GMcC	Final Draft for Discussion
2	19.03.2021	GMcC	GMcC	Updated for Planning



We aim to be the pre-eminent provider of quality sustainability driven building services solutions and the best to work with, in the view of our clients, partners and colleagues. We believe in a sustainability led approach to design for the benefit of our clients and the world we live in.

It is our ultimate goal to work closely with our fellow professionals and clients to minimise carbon emissions and to deliver a better environment for us all to live in.

### **Mardyke Street and Pump Lane**

These areas will be illuminated to “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class C3 which will provide a minimum average horizontal illuminance of 15 lux with a minimum uniformity of 0.4 on the road. The roads will be illuminated using an 8m galvanised steel lighting column to Westmeath Council’s approved standards. The street lighting lanterns will be manufactured by Messrs Urbis Lighting and will be from their Axia 3 range and will utilise the latest LED lighting technology. This design will provide an aesthetically pleasing, low maintenance and uniformly lit space for the wider public.

### Sample Images

<i>Precedent</i>	<i>Lantern</i>
	

**Sean Costello Street**

This street will be illuminated to a “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class P1 which will provide a minimum average horizontal illuminance of minimum 15 lux with a minimum uniformity of 0.3. The Street will be illuminated using an 8m architectural conical lighting column to Westmeath Council’s approved standards. The lanterns will be manufactured by Messrs Urbis Lighting and will be from their Focal range. This design will provide an aesthetically pleasing, low maintenance and uniformly lit space for the wider public. Due to this street being of more architectural significance and importance to the project and combined with the more pedestrianised nature, we have designed for a slightly higher average illuminance for this area using multidirectional spot light type luminaires to provide more adjustability and flexibility to the scheme

Sample Images

<i>Precedent</i>	<i>Lantern</i>
	

# AXIA 3.3

## 5267

<b>Optic</b>	5267
<b>Protector</b>	Integrated lenses
<b>Source</b>	48 Osram OSOLON SQUARE GIANT
<b>Matrix</b>	429224



### Characteristics

550	277	130	6.0	IP 66	IK 10	I EU, II EU	0.042
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Tightness level*	Impact resistance*	Electrical class*	CxS (m <sup>2</sup> )

\* According to IEC-EN60598 and IEC-EN62262

### Features

Engineered for performance, designed for the customer experience

- Maximised savings in energy and maintenance costs
- ProFlex™ photometric engines offering high efficiency lighting, comfort and safety
- 5 sizes to provide the most accurate solutions for numerous road and urban applications
- Easy installation: pre-cabled and equipped with universal fixation adapted for side-entry and post-top mounting
- Adjustable inclination for optimised photometry and uniformity
- Connected-ready

### Types of application

- Square and park
- Bridge
- Large area
- Roundabout
- Car park
- Road and highway
- Residential road
- Bike path
- Urban road

### Information for 1000 lm matrix

<b>Efficacy (%)</b>	88.4	<b>G Class (EN 13201-2)</b>	G2	<b>I 70-80-90-95 (cd)</b>	867 - 138 - 8 - X
<b>DLOR (%)</b>	88.4	<b>G* (EN 13201 2015)</b>	G*1	<b>CIE flux code N 1→5 (%)</b>	23.2 - 53.8 - 94.1 - 100.0 - 88.4
<b>ULOR (%)</b>	0.0	<b>Imax (cd)</b>	867	<b>Gradient 90°</b>	72cd
<b>ULR (%)</b>	0.0	<b>Aperture 0-180°</b>	66 - 66	<b>Gradient 270°</b>	9cd
<b>Incl ULR 4%</b>	-43/25°	<b>Aperture 90-270°</b>	X - X		

## Photometrical characteristics

LED count	Colour code	Current (mA)	Luminaire power (W)	Source flux (lm)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Peak (cd)	BUG Rating	Voltage (V)
Ambient temp = 25°									
48	NW 740	200	29	5180	4581	158	4489	B1 U1 G1	230
48	NW 740	300	43	7592	6713	160	6579	B1 U1 G2	230
48	NW 740	400	57	9837	8698	153	8524	B2 U1 G2	230
48	NW 740	550	79	12894	11402	144	11174	B2 U1 G2	230
48	NW 740	600	86	13829	12229	142	11984	B2 U1 G2	230
48	NW 740	700	100	15585	13781	138	13506	B2 U1 G3	230
48	NW 740	800	115	17166	15180	132	14876	B2 U1 G3	230
48	NW 740	880	129	18319	16199	126	15876	B2 U1 G3	230
48	WW 730	200	29	4839	4279	148	4193	B1 U1 G1	230
48	WW 730	300	43	7091	6270	149	6145	B1 U1 G2	230
48	WW 730	400	57	9188	8125	143	7962	B1 U1 G2	230
48	WW 730	550	79	12044	10650	135	10437	B2 U1 G2	230
48	WW 730	600	86	12917	11422	133	11194	B2 U1 G2	230
48	WW 730	700	100	14557	12873	129	12615	B2 U1 G3	230
48	WW 730	800	115	16034	14179	123	13895	B2 U1 G3	230
48	WW 730	880	129	17112	15131	117	14829	B2 U1 G3	230

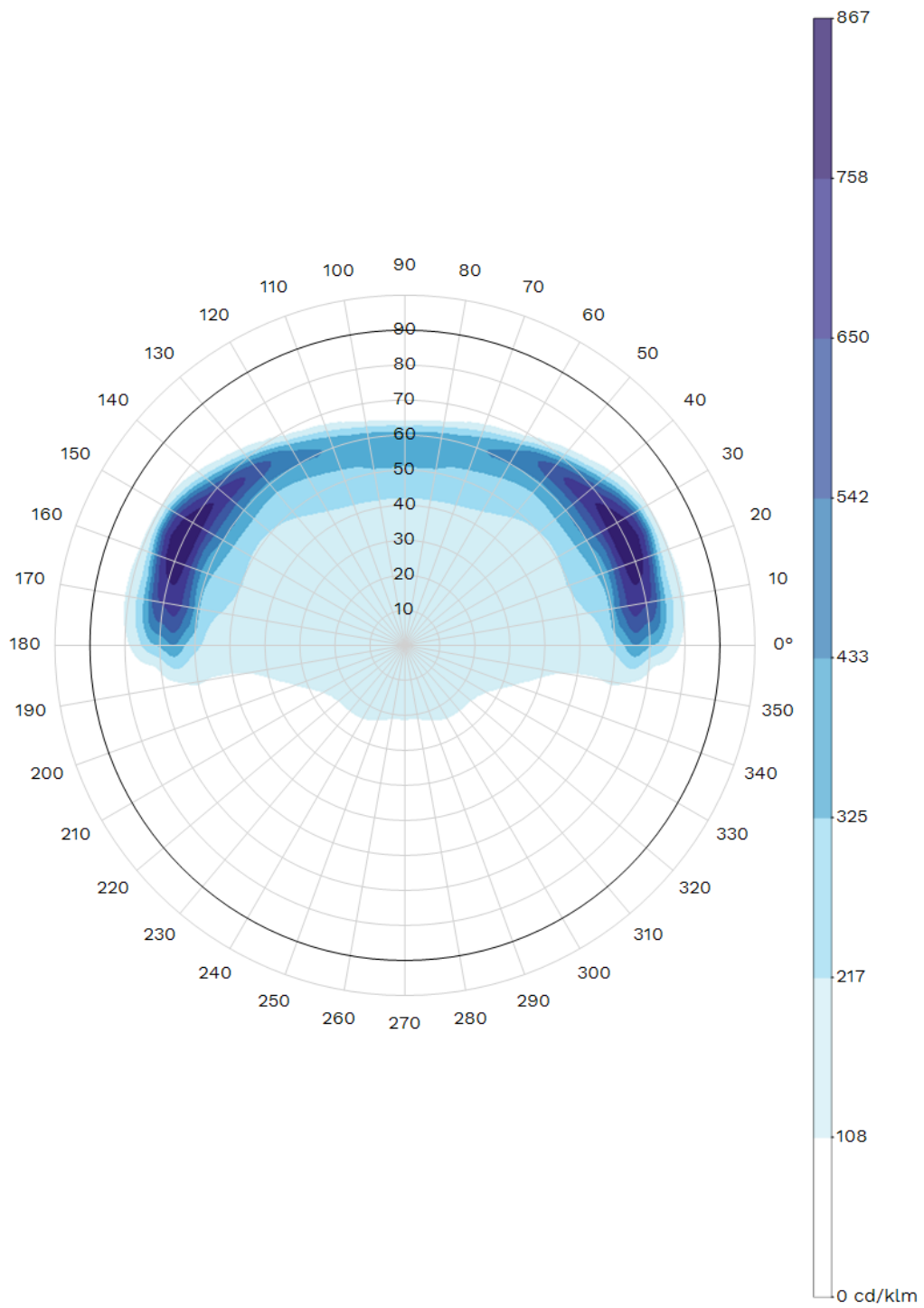
*Tolerance on flux +- 7% - Tolerance on power +- 5%*

## Summary

Axia 3 is a robust yet compact luminaire, designed with a focus on miniaturisation and superior efficiency. Composed of high-pressure die-cast aluminium, as well as composite materials, Axia 3 is available in three sizes. Thanks to its reduced weight, this road luminaire is easy to handle during installation. The Axia 3.1, which can be fitted with up to 16 LEDs, is perfectly suited to low-height applications, whereas Axia 3.2 and 3.3, with up to 32 or 64 LEDs, are ideal for lighting urban and large roads, carriageways and avenues. The Axia 3 range is equipped with ProFlex™ photometric engines, providing the highest efficiency thanks to their ability to maximise the lumen output and to provide very extensive light distributions.

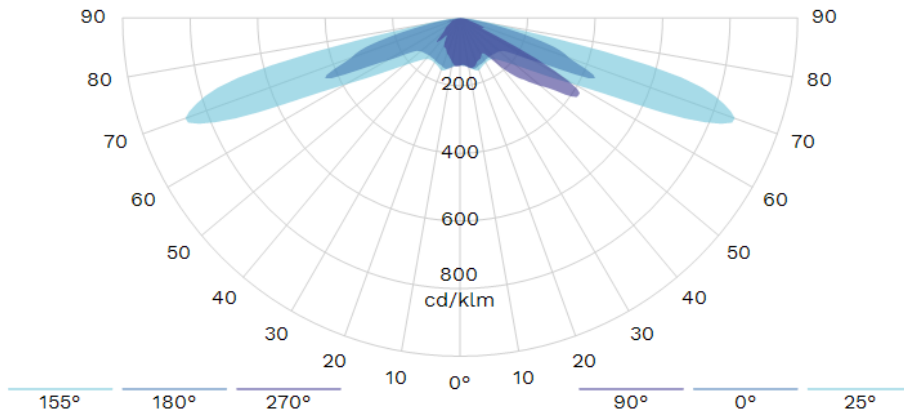
Axia 3 comes pre-cabled, hence there is no need to open the luminaire. The complete range is available with an integrated universal fixation part adapted for post-top and side-entry mounting on various spigots (Ø32mm with adapter, Ø42-48mm, Ø60mm and Ø76mm). The inclination angle can be adjusted on-site for both post-top (-5°/+15°) and side-entry (-10°/+10°) configurations to optimise lighting, reduce power consumption and control light pollution.

This highly efficient, cost-effective and connected-ready luminaire, offers towns and cities the ideal solution to improve lighting levels, increase safety, generate energy savings and reduce their ecological footprint. Axia 3 is the ideal tool to provide another 25 years of efficiency, sustainability and safety.

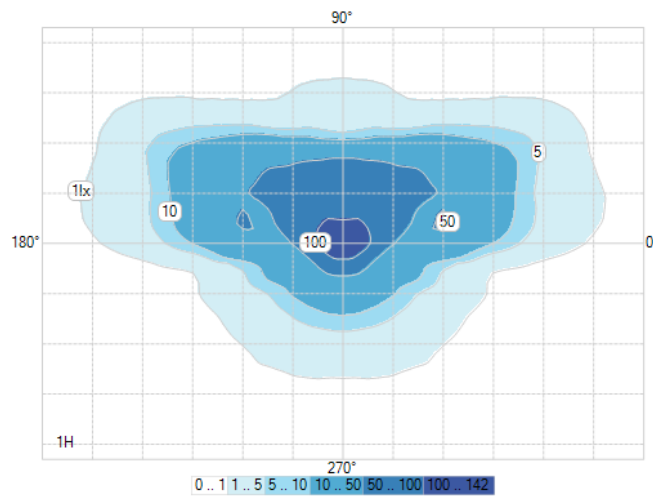




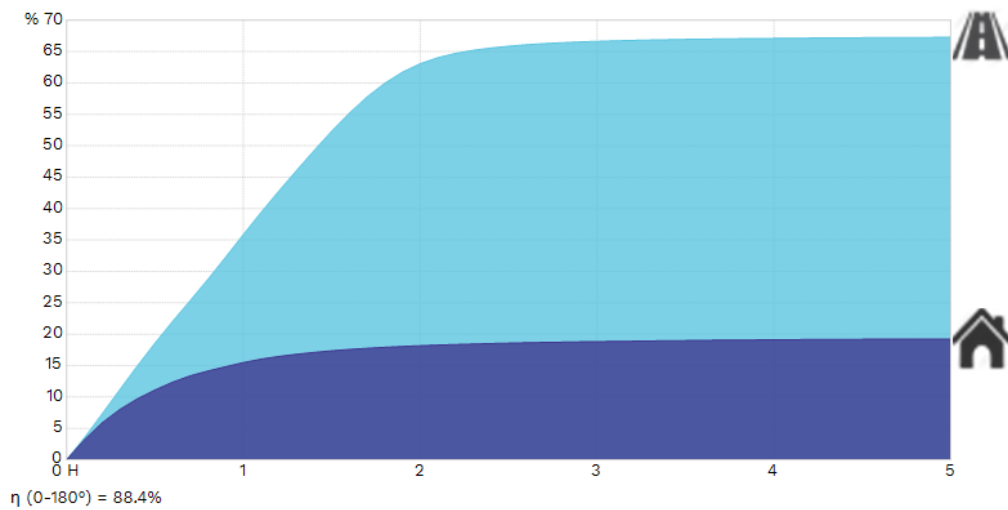
Polar/Cartesian diagram



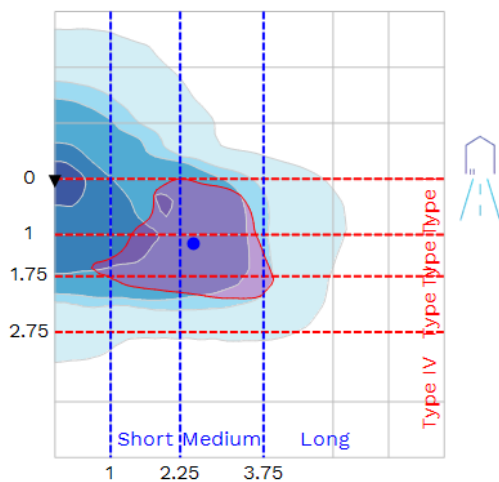
Isolux



K-Curve

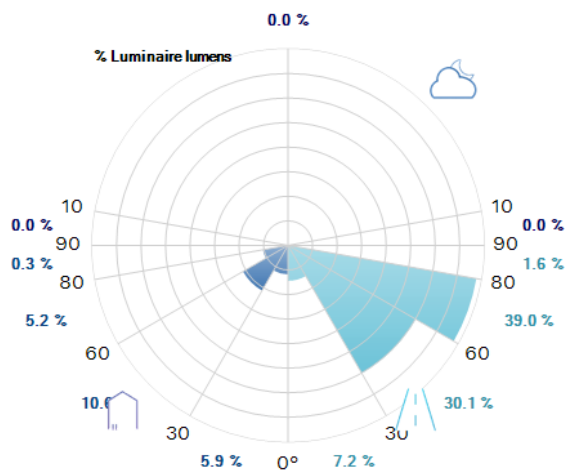


IES Roadway Classification / Nema Classification

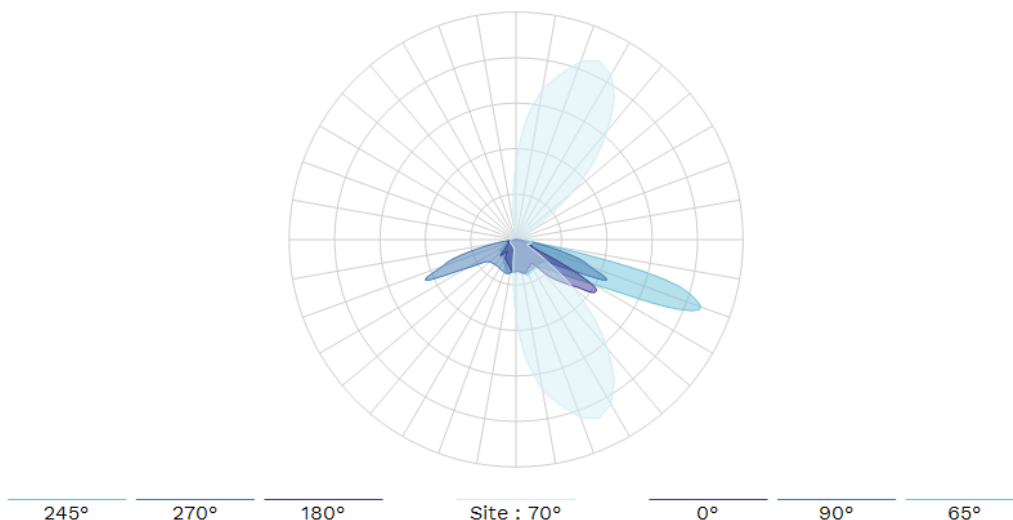


III - Medium

Luminaire classification system (LCS)



Intensity diagram in max Cone and in CPlane



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# FOCAL LED

## 6319

<b>Optic</b>	6319
<b>Protector</b>	Flat glass, Flat, PMMA, Smooth
<b>Source</b>	40 Cree XP-G3
<b>Matrix</b>	393512



### Characteristics

							
325	254	323	4.0	IP 66	IK 08	I EU, II EU	-
Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Tightness level*	Impact resistance*	Electrical class*	CxS (m <sup>2</sup> )

\* According to IEC-EN60598 and IEC-EN62262

### Features

The great photometric flexibility of the Focal enables this floodlight to obtain the desired illumination with a high degree of accuracy

- Numerous and accurate light distributions
- Precise on-site adjustment while switched on
- Large choice of accessories
- Gobo available for artistic effects
- High tightness level (IP 66)
- High quality and resistant materials

### Information for 1000 lm matrix

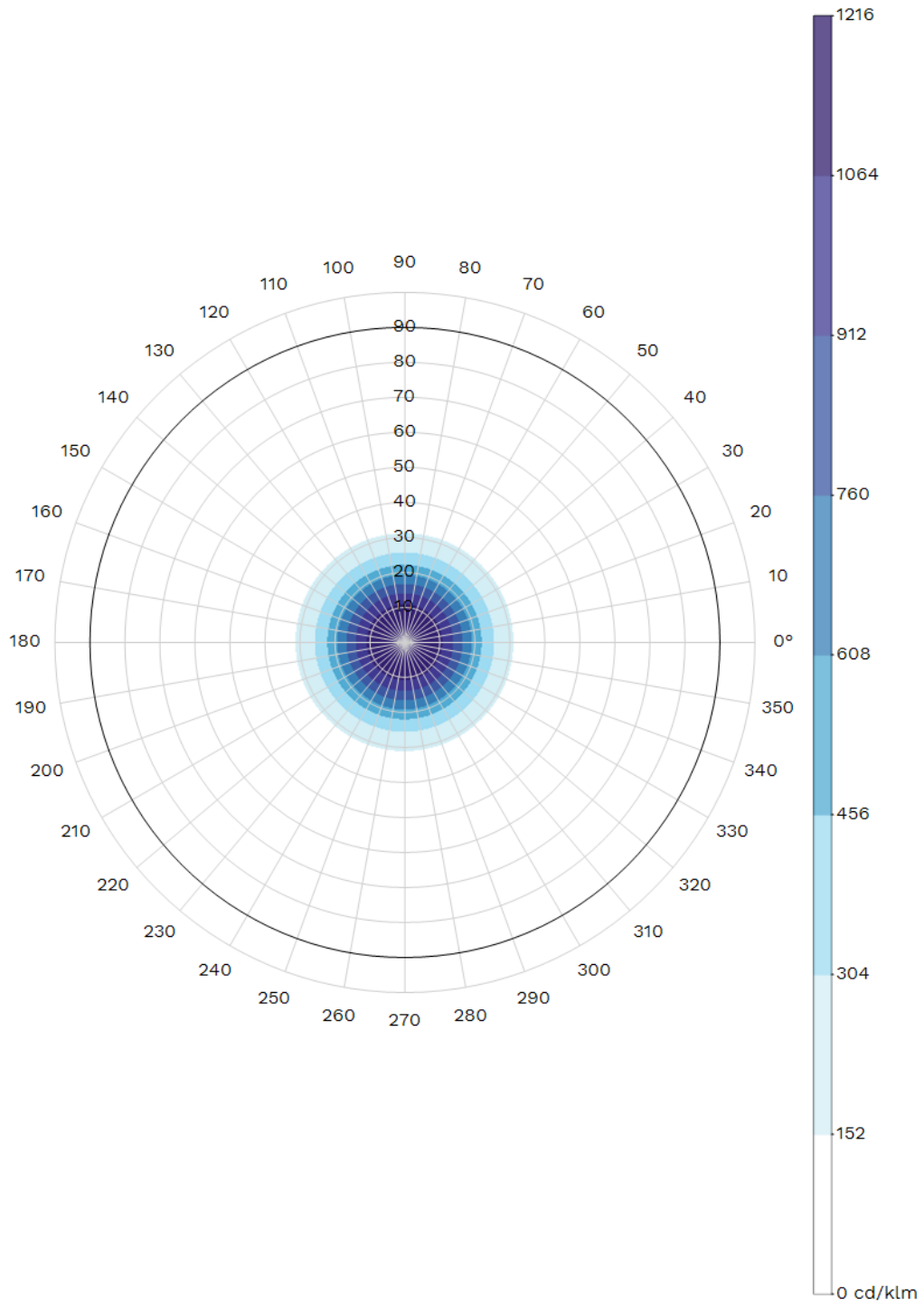
<b>Efficacy (%)</b>	61.5	<b>G Class (EN 13201-2)</b>	G6	<b>I 70-80-90-95 (cd)</b>	8 - 1 - X - X
<b>DLOR (%)</b>	61.5	<b>G* (EN 13201 2015)</b>	G*6	<b>CIE flux code N 1→5 (%)</b>	91.3 - 97.2 - 99.8 - 100.0 - 61.5
<b>ULOR (%)</b>	0.0	<b>Imax (cd)</b>	1216	<b>Gradient 90°</b>	60cd
<b>ULR (%)</b>	0.0	<b>Aperture 0-180°</b>	19 - 19	<b>Gradient 270°</b>	60cd
<b>Incl ULR 4%</b>	-45/45°	<b>Aperture 90-270°</b>	19 - 19		

## Photometrical characteristics

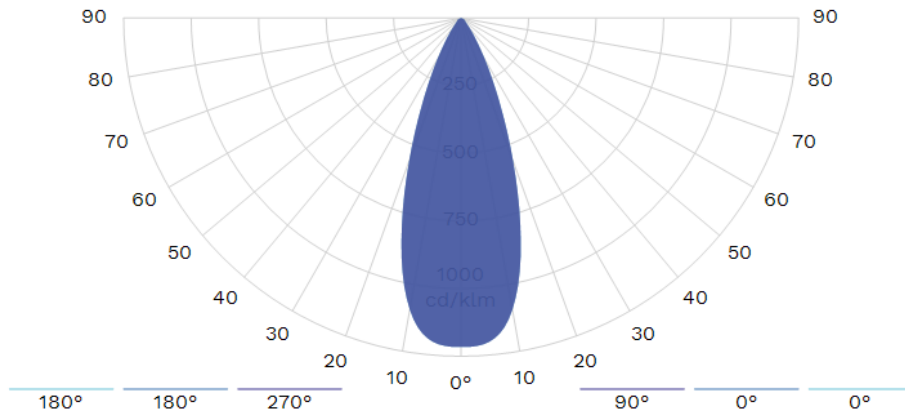
LED count	Colour code	Current (mA)	Luminaire power (W)	Source flux (lm)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Peak (cd)	BUG Rating	Voltage (V)
Ambient temp = 25°									
40	NW 740	350	45	7320	4501	100	8902	B3 U0 G0	230
40	WW 730	350	45	7080	4353	97	8610	B3 U0 G0	230

*Tolerance on flux +- 7% - Tolerance on power +- 5%*

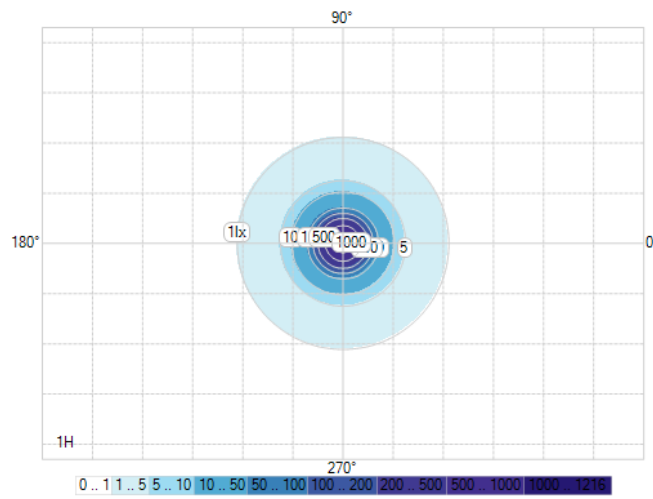
Hypergon view



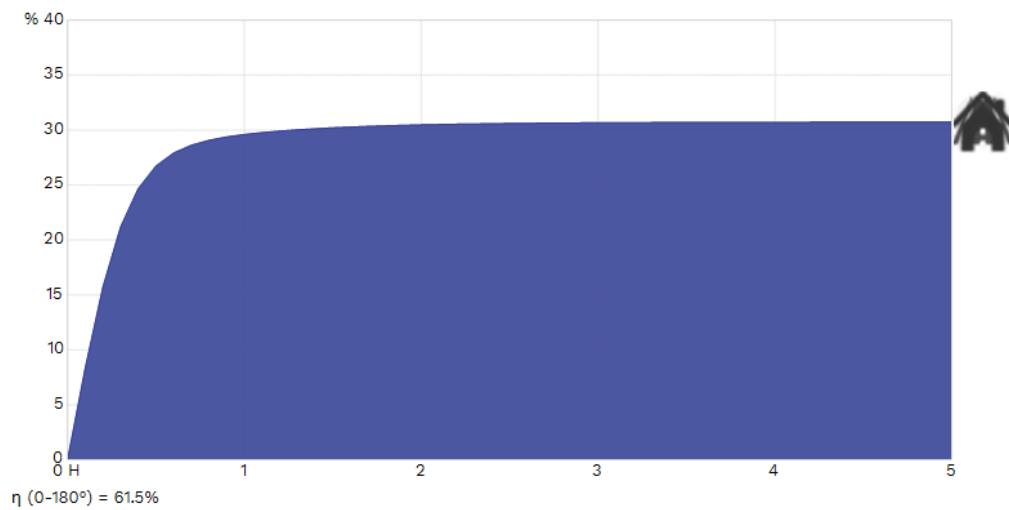
Polar/Cartesian diagram



Isolux



K-Curve





**DATE:** 18 March 2021  
**DESIGNER:** Nicholas Hedge  
**PROJECT No:** OP000171132  
**PROJECT NAME:** IRELAND - ATHLONE PUBLIC REALM

**Schröder**  
Experts in lightability™

LIGHTING CALCULATION: OP000171132-LD15355\_01C

Designed to achieve:

C3 Lighting Class as per customers request  
8.0m Column Height  
0 Degree Inclination

Maintenance Factor calculated as per ILP Guidance Note 11  
(GN11/20)  
 $f_{LF} \times f_S \times f_{LM} \times f_{SM} = f_m$   
 $0.98 \times 0.97 \times 0.92 \times 1 = 0.87$   
(CLO N/A)

## Outdoor Lighting Report

This design has been prepared in accordance with the HEA/HEMSA Guidance Note - CDM2015 Regulations, Issue 1.1 dated 09/04/15 - Procedure 2 for an outline design. The information in this report does not account for installation considerations, site conditions or provide any form of risk assessment. Urbis' design service is advisory only and it is the responsibility of the recipient of this information to verify that the design is suitable for the intended application. No account is taken for the blocking effect caused by buildings, trees etc.

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## Layout Report

### General Data

Dimensions in Metres Angles in Degrees

### Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	604186.63	741381.80	187.93	116.57	1.49	1.49
2	Grid 2	604240.23	741396.51	88.68	50.41	1.48	1.68

### Luminaires



#### Luminaire A Data

Supplier	Urbis Schreder
Type	AXIA 3.3 5267 Integrated lenses 48 OSLO N SQUARE GIANT@700mA
Lamp(s)	48 OSLO N SQUARE GIANT@700mA NW 740 230V
LampFlux(klm)/Colour	13.78 NW 4000K/70
File Name	AXIA 3.3 5267 48 OSLO N SQUARE GIANT 700mA NW 740 100W 429224 Integrated I...
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	980.0, 156.0, 9.0
No. in Project	8

#### Luminaire C Data

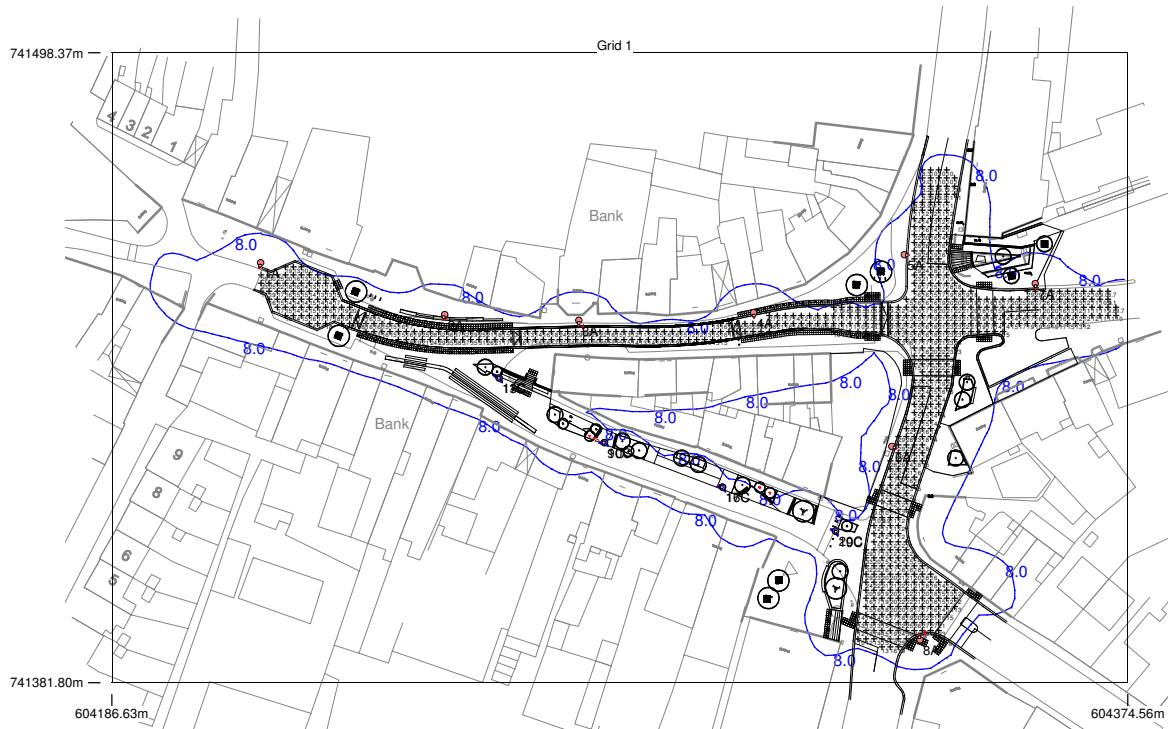
Supplier	
Type	FOCAL LED 6319 [Flat glass], [Flat, PMMA, Smooth] - 40 XP-G3
Lamp(s)	40 XP-G3@350mA NW 740 230V
LampFlux(klm)/Colour	4.50 NW 4000K/70
File Name	FOCAL LED 6319 40 XP-G3 350mA NW 740 0 45W 393512 [Flat glass], [Flat, PMMA, ...
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	13.4, 2.4, 0.0
No. in Project	8

### Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	604214.16	741459.53	8.00	259.00	0.00	0.00	0.50			
2	A	604248.21	741449.94	8.00	250.00	0.00	0.00	0.50			
3	A	604272.98	741448.89	8.00	268.00	0.00	0.00	0.50			
4	A	604305.30	741450.29	8.00	279.00	0.00	0.00	0.50			
5	A	604333.17	741461.00	8.00	353.00	0.00	0.00	0.50			
6	A	604330.88	741425.57	8.00	335.00	0.00	0.00	0.50			
7	A	604357.37	741455.71	8.00	277.00	0.00	0.00	0.50			
8	A	604336.07	741389.82	8.00	104.00	0.00	0.00	0.50			
9	C	604277.70	741426.30	7.50	316.00	35.00	0.00	0.10			
10	C	604277.73	741426.27	8.00	182.00	35.00	0.00	0.10			
11	C	604258.27	741438.20	7.50	305.00	35.00	0.00	0.10			
13	C	604258.27	741438.20	8.00	157.00	40.00	0.00	0.10			
16	C	604299.56	741418.04	7.50	301.00	35.00	0.00	0.10			
17	C	604299.56	741418.04	8.00	173.00	35.00	0.00	0.10			
19	C	604320.45	741409.88	8.00	161.00	35.00	0.00	0.10			
20	C	604320.47	741409.91	7.50	293.00	35.00	0.00	0.10			

# Horizontal Illuminance (lux)

Grid 1

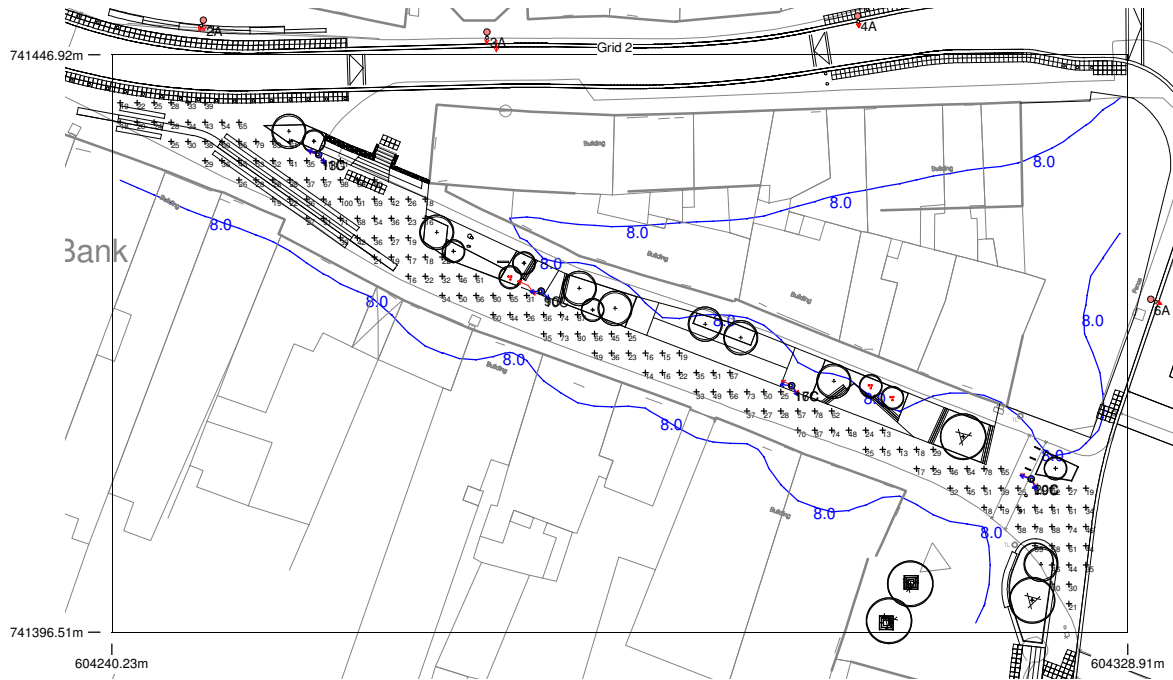


## Results

Eav	17.06
Emin	8.03
Emax	38.04
Emin/Emax	0.21
Emin/Eav	0.47

# Horizontal Illuminance (lux)

Grid 2



## Results

Eav	43.05
Emin	13.20
E <sub>max</sub>	100.09
E <sub>min</sub> /E <sub>max</sub>	0.13
E <sub>min</sub> /E <sub>av</sub>	0.31



Wallace Whittle

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