

Ryburn Valley High School

Artificial Turf Pitch

Project code: SC105
Date: 10-11-2023

Designer: WB

Description: Proposed Lighting Scheme

Rugby and Football Match Play:
Maintained average illuminance >200 lux
Uniformity Ratio (Ev.min/Ev.ave) >0.60

All luminaires have a zero upward light ratio without the use of additional accessories.

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

Surfacing Standards LTD

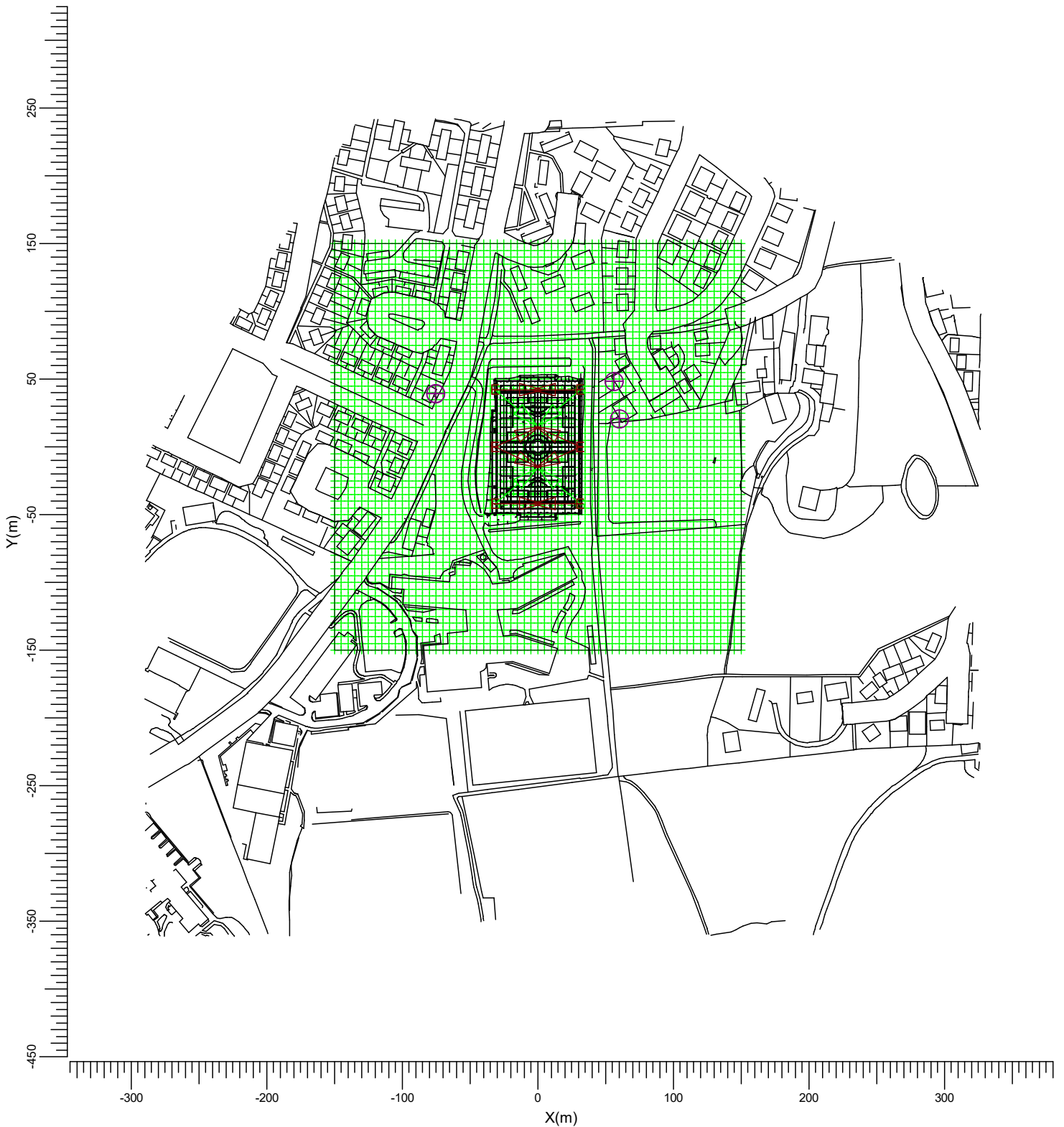
Office 2
Empingham House
Ayston Road
Uppingham
LE15 9NY

Table of Contents

1.	Project Description	3
1.1	Top Project Overview	3
2.	Summary	4
2.1	Observer Information	4
2.2	Project Luminaires	4
2.3	Calculation Results	4
3.	Calculation Results	6
3.1	Football 200 Lux: Graphical Table	6
3.2	Spillage Grid 0m: Filled Iso Contour	7
4.	Luminaire Details	8
4.1	Project Luminaires	8
5.	Installation Data	9
5.1	Legends	9
5.2	Luminaire Positioning and Orientation	9

1. Project Description

1.1 Top Project Overview



E  BVP518 OUT T35 A35-NB LO G  BVP528 OUT T35 A35-NB LO

Scale
1:4000

2. Summary

2.1 Observer Information

Code	Observer	Position		
		X (m)	Y (m)	Z (m)
Aa	House 1 1st floor window	60.02	21.12	-2.91
Bb	House 1 3.6m 2nd floor w	60.02	20.99	-1.11
Cc	House 2 1st floor window	56.25	48.62	-2.91
Dd	House 2 3.6m 2nd floor w	56.25	48.62	-1.11
Ee	House 3 1st floor window	-75.25	39.61	1.80
Ff	House 3 3.6m 2nd floor w	-75.25	39.48	3.60

2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
E	8	BVP518 OUT T35 A35-NB LO	1 * LED1720-4S/740	1006.0	1 * 172000
G	4	BVP528 OUT T35 A35-NB LO	1 * LED2590-4S/740	1505.9	1 * 259000

The total installed power: 14.07 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code		Power (kWatt)
	E	G	
200 Lux Switching	8	4	14.07
Spillage Switching	8	4	14.07

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code		Power (kWatt)
	E	G	
Centre East	0	0	0.00
Centre West	4	0	4.02
North Masts	0	0	0.00
South Masts	4	4	10.05

2.3 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	200 Lux Switching	0.90
2	Spillage Switching	1.00

(II)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave Min/AveMin/Max		
Football 200 Lux	1	Surface Illuminance	lux	205	0.63	0.46
Spillage Grid 0m	2	Surface Illuminance	lux	15.1	0.00	0.00

Obtrusive Light Calculations:

Switching Mode	Observer Code	Luminaire Code	Position			Aiming Angles			Maximum Intensity (cd)
			X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	
1	Aa	G	-31.50	-42.00	13.00	40.00	72.00	-0.00	1751
1	Bb	G	-31.50	-42.00	13.00	40.00	72.00	-0.00	1267
1	Cc	E	-31.50	42.00	13.00	-0.00	70.00	0.00	1225
1	Dd	E	-31.50	42.00	13.00	-0.00	70.00	0.00	839
1	Ee	G	31.50	-42.00	13.00	140.00	72.00	0.00	736
1	Ff	G	31.50	-42.00	13.00	140.00	72.00	0.00	719

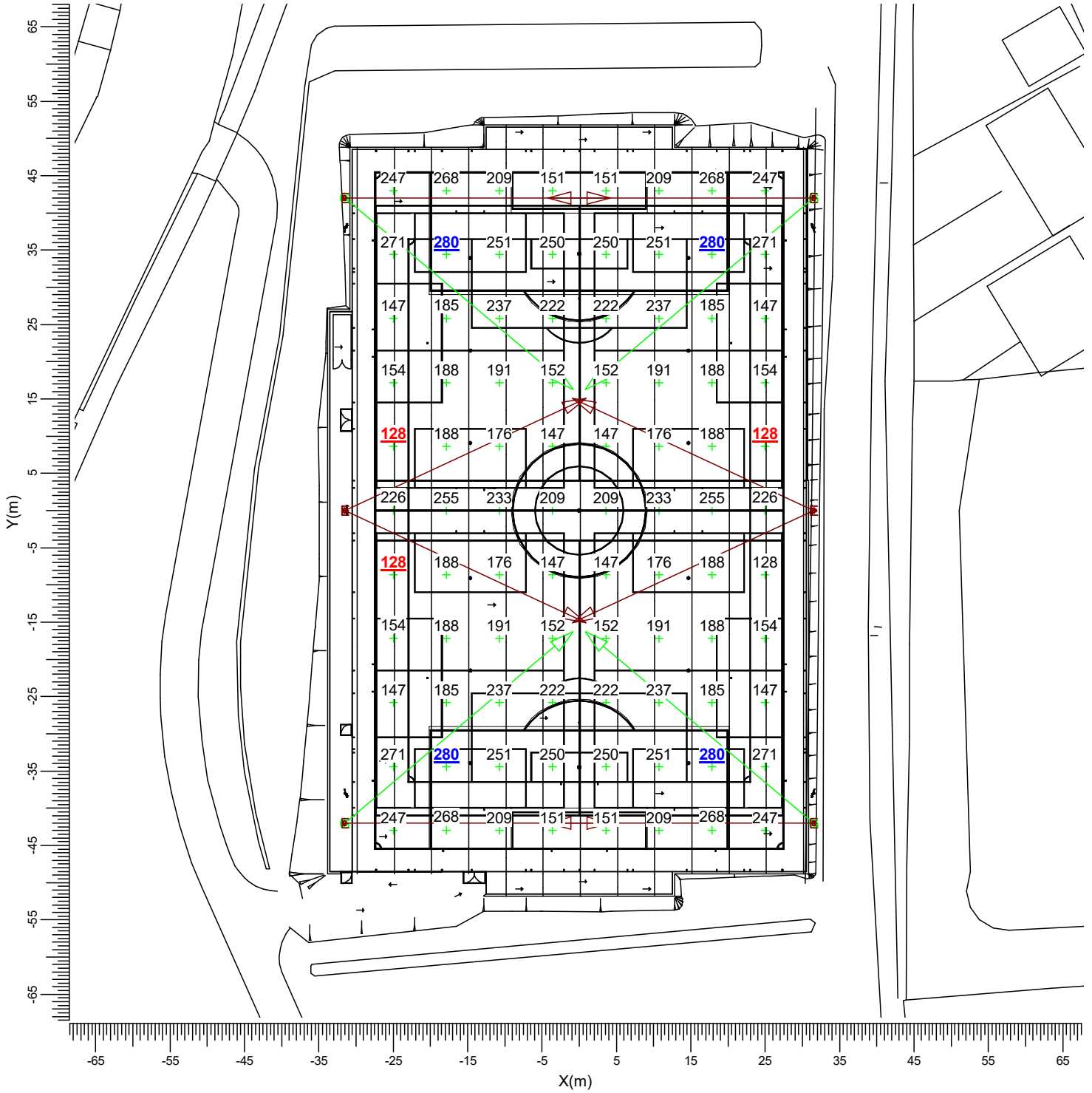
Switching Mode	ULR
1	0.00
2	0.00

3. Calculation Results

3.1 Football 200 Lux: Graphical Table

200 Lux Switching

Grid : Football at Z = -0.00 m
Calculation : Surface Illuminance (lux)



E → BVP518 OUT T35 A35-NB LO G → BVP528 OUT T35 A35-NB LO

Average
205

Min/Ave
0.63

Min/Max
0.46

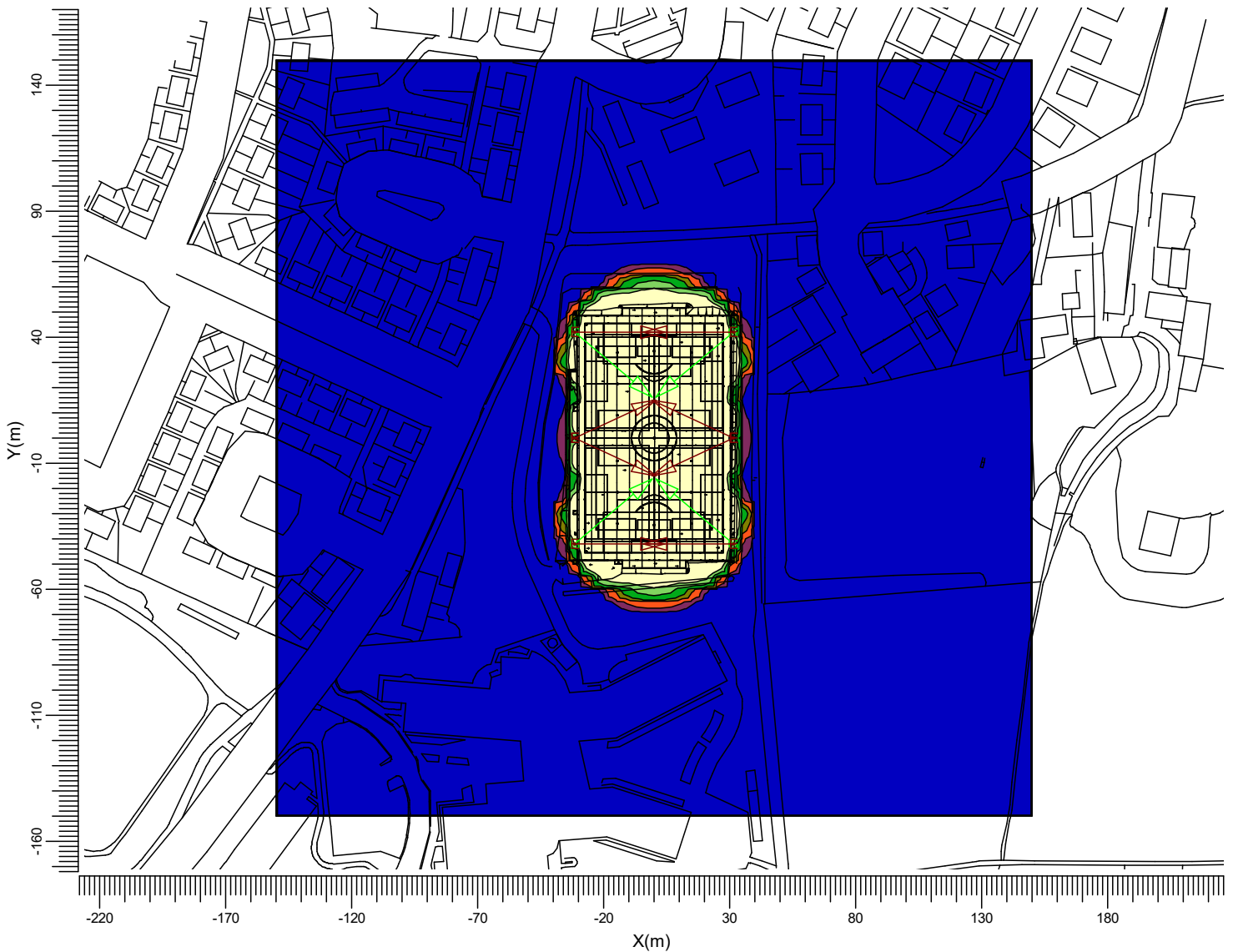
Project maintenance factor
0.90

Scale
1:750

3.2 Spillage Grid 0m: Filled Iso Contour

Spillage Switching

Grid : Spillage Grid at Z = -0.00 m
 Calculation : Surface Illuminance (lux)



E BVP518 OUT T35 A35-NB LO G BVP528 OUT T35 A35-NB LO

Average
15.1

Min/Ave
0.00

Min/Max
0.00

Project maintenance factor
1.00

Scale
1:2500

4. Luminaire Details

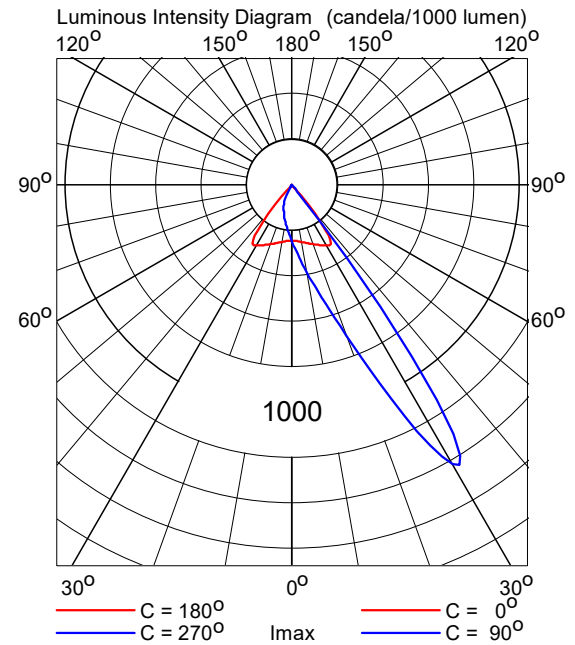
4.1 Project Luminaires

OptiVision LED gen3.5 2022
BVP518 OUT T35 1xLED1720-4S/740/740 E3/D4I A35-NB LO

Light output ratios

DLOR	: 0.59
ULOR	: 0.00
TLOR	: 0.59
Ballast	: E3/D4I
Lamp flux	: 172000 lm
Luminaire wattage	: 1006.0 W
Measurement code	: LVM2047300

Note: Luminaire data not from database.

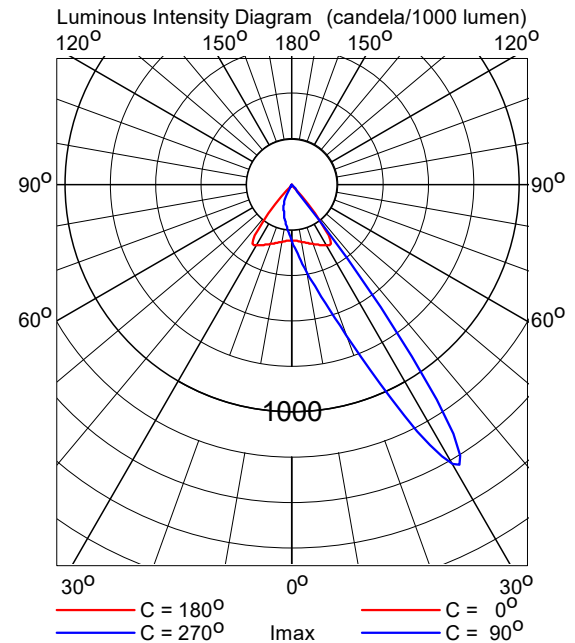


OptiVision LED gen3.5 2022
BVP528 OUT T35 1xLED2590-4S/740/740 E3/D4I A35-NB LO

Light output ratios

DLOR	: 0.59
ULOR	: 0.00
TLOR	: 0.59
Ballast	: E3/D4I
Lamp flux	: 259000 lm
Luminaire wattage	: 1505.9 W
Measurement code	: LVM2047300

Note: Luminaire data not from database.



5. Installation Data

5.1 Legends

Project Luminaires:

Code	Qty	Luminaire Type	Lamp Type	Flux (lm)
E	8	BVP518 OUT T35 A35-NB LO	1 * LED1720-4S/740	1 * 172000
G	4	BVP528 OUT T35 A35-NB LO	1 * LED2590-4S/740	1 * 259000

Switching Modes:

Code	Switching Mode
1	200 Lux Switching
2	Spillage Switching

5.2 Luminaire Positioning and Orientation

Qty and Code	Position			Aiming Angles			Switching Modes (%)	
	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	1	2
1 * G	-31.50	-42.00	13.00	40.0	72.0	-0.0	100	100
1 * E	-31.50	-42.00	13.00	0.0	70.0	-0.0	100	100
1 * E	-31.50	-0.00	13.00	-25.0	70.0	0.0	100	100
1 * E	-31.50	-0.00	13.00	25.0	70.0	-0.0	100	100
1 * G	-31.50	42.00	13.00	-40.0	72.0	0.0	100	100
1 * E	-31.50	42.00	13.00	-0.0	70.0	0.0	100	100
1 * G	31.50	-42.00	13.00	140.0	72.0	0.0	100	100
1 * E	31.50	-42.00	13.00	180.0	70.0	0.0	100	100
1 * E	31.50	-0.00	13.00	-155.0	70.0	-0.0	100	100
1 * E	31.50	-0.00	13.00	155.0	70.0	0.0	100	100
1 * G	31.50	42.00	13.00	-140.0	72.0	-0.0	100	100
1 * E	31.50	42.00	13.00	-180.0	70.0	-0.0	100	100