

# Palmer Park

Installation : Exterior Lighting

Project number : P173-1313

Customer :

Processed by : Adam Hands

Date : 16.02.2023

Project description:  
Luminous Intensity and Glare calculation.

ILP Guidance on Reduction of Obtrusive Light Table 4 - Limits of Luminous Intensity  
Zone E3 - Size 0.03 to 0.13m<sup>2</sup>  
= 7.5d (distance from column to House 44m) = Total Maximum 330cd  
design achieves 160cd maximum

The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

## 1 Luminaire data

### 1.1 HOLOPHANE EUROPE LIMITED, EX1A ()

#### 1.1.1 Data sheet

##### EX1A

Luminaire arrangement for:

|                                       | Position |       |       | Rotation |       |        |
|---------------------------------------|----------|-------|-------|----------|-------|--------|
|                                       | x[m]     | y[m]  | z[m]  | Z[°]     | C0[°] | C90[°] |
| FACTOR STREETLIGHT (FTS.3.LA103.... : | 0.000    | 0.300 | 6.000 | 0        | 0     | 0      |

Position is the LDC position of the luminaire.

##### FTS.3.LA103.FW

##### FACTOR STREETLIGHT

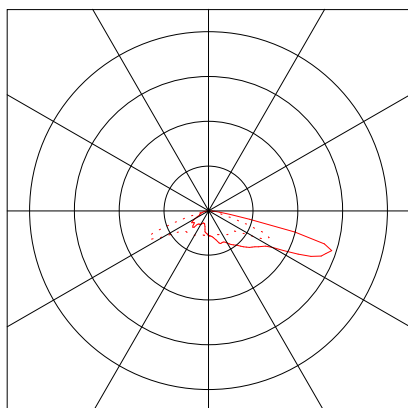
###### Luminaire data

|                     |                     |
|---------------------|---------------------|
| Absolute Photometry |                     |
| Luminaire efficacy  | : 115.1 lm/W        |
| Classification      | : A10 ↓100.0% ↑0.0% |
| CIE Flux Codes      | : 19 47 90 100 100  |
| UGR 4H 8H           | : 40.9 / 33.5       |
| Power               | : 78 W              |
| Luminous flux       | : 8978 lm           |

###### Equipped with

|             |                          |
|-------------|--------------------------|
| Quantity    | : 1                      |
| Designation | : LED<br>C.10000LM-3000K |
| Colour      | :                        |

Dimensions : 247 mm x 280 mm x 1 mm



# 1 Luminaire data

## 1.2 HOLOPHANE EUROPE LIMITED, EXA3 ()

### 1.2.1 Data sheet

#### EXA3

Luminaire arrangement for:

|                                       | Position |       |       | Rotation |       |        |
|---------------------------------------|----------|-------|-------|----------|-------|--------|
|                                       | x[m]     | y[m]  | z[m]  | Z[°]     | C0[°] | C90[°] |
| FACTOR STREETLIGHT (FTS.3.LA103.... : | 0.000    | 0.300 | 6.000 | 0        | 0     | 0      |

Position is the LDC position of the luminaire.

#### FTS.3.LA103.SY FACTOR STREETLIGHT

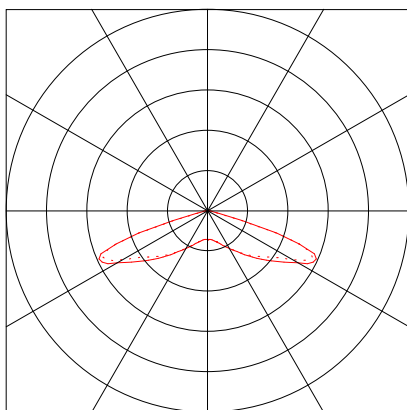
##### Luminaire data

|                     |                     |
|---------------------|---------------------|
| Absolute Photometry |                     |
| Luminaire efficacy  | : 117.82 lm/W       |
| Classification      | : A20 ↓100.0% ↑0.0% |
| CIE Flux Codes      | : 17 50 97 100 100  |
| UGR 4H 8H           | : 36.5 / 36.9       |
| Power               | : 78 W              |
| Luminous flux       | : 9190 lm           |

##### Equipped with

|             |                   |
|-------------|-------------------|
| Quantity    | : 1               |
| Designation | : LED             |
|             | : C.10000LM-3000K |
| Colour      | :                 |

Dimensions : 244 mm x 137 mm x 9 mm



## 1 Luminaire data

### 1.3 HOLOPHANE EUROPE LIMITED, Denver Elite Wall (DEW.LA013.CGL.NR)

#### 1.3.1 Data sheet

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**Manufacturer: HOLOPHANE EUROPE LIMITED**

**DEW.LA013.CGL.NR**

**Denver Elite Wall**

#### Luminaire data

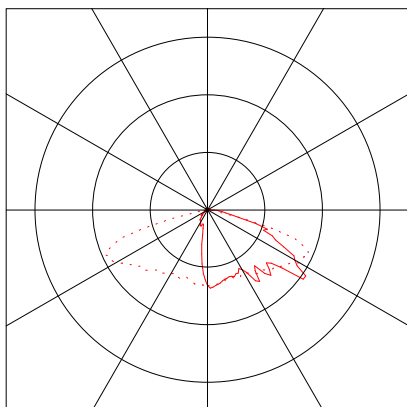
Absolute Photometry

Luminaire efficacy : 95.17 lm/W  
Classification : A31 ↓97.4% ↑2.6%  
CIE Flux Codes : 30 63 93 97 100  
UGR 4H 8H : 26.8 / 31.2  
Power : 12 W  
Luminous flux : 1142 lm

#### Equipped with

Quantity : 1  
Designation : LED C.1000LM  
- 3000K  
Colour :

Dimensions : 320 mm x 119 mm x 46 mm



# 1 Luminaire data

## 1.4 HOLOPHANE EUROPE LIMITED, Z ()

### 1.4.1 Data sheet

Z

Luminaire arrangement for:

|                                       | Position |       |       | Rotation |       |        |
|---------------------------------------|----------|-------|-------|----------|-------|--------|
|                                       | x[m]     | y[m]  | z[m]  | Z[°]     | C0[°] | C90[°] |
| FACTOR STREETLIGHT (FTS.2.LA033.... : | 0.000    | 0.300 | 4.000 | 0        | 0     | 0      |

Position is the LDC position of the luminaire.

**FTS.2.LA033.NR**

**FACTOR STREETLIGHT**

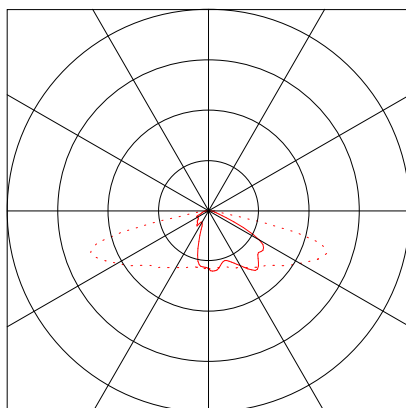
#### Luminaire data

|                     |                     |
|---------------------|---------------------|
| Absolute Photometry |                     |
| Luminaire efficacy  | : 116.09 lm/W       |
| Classification      | : A30 ↓100.0% ↑0.0% |
| CIE Flux Codes      | : 30 62 92 100 100  |
| UGR 4H 8H           | : 27.3 / 37.2       |
| Power               | : 23 W              |
| Luminous flux       | : 2670 lm           |

#### Equipped with

|             |                |
|-------------|----------------|
| Quantity    | : 1            |
| Designation | : LED          |
|             | C.3000LM-3000K |
| Colour      | :              |

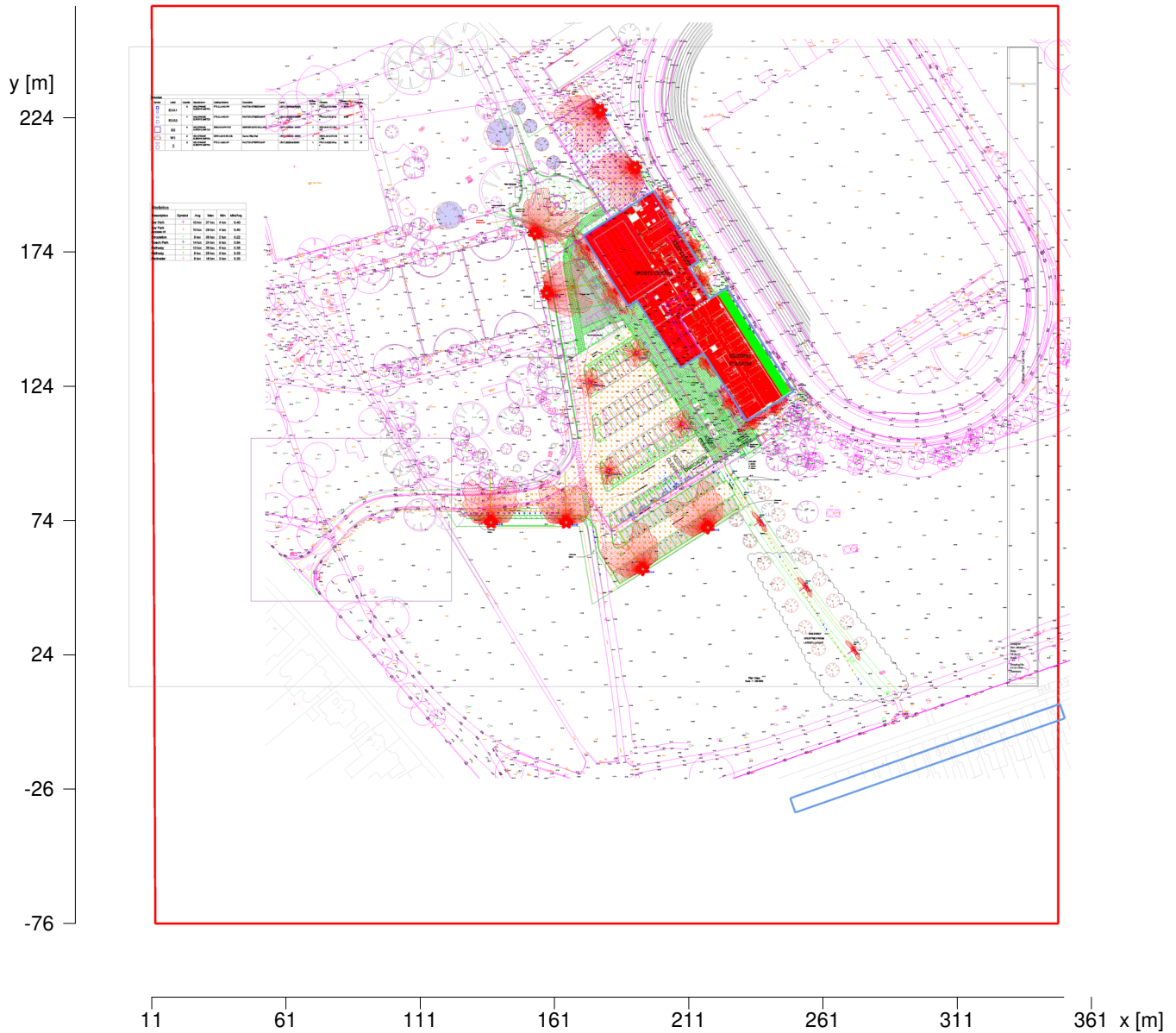
Dimensions : 244 mm x 137 mm x 9 mm



## 2 Exterior 1

### 2.1 Description, Exterior 1

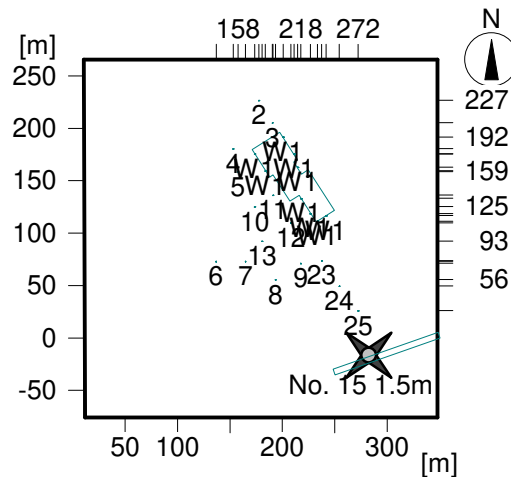
#### 2.1.1 Floor plan



## 2 Exterior 1

### 2.2 Calculation results, Exterior 1

#### 2.2.1 Luminous intensity - No. 15 1.5m



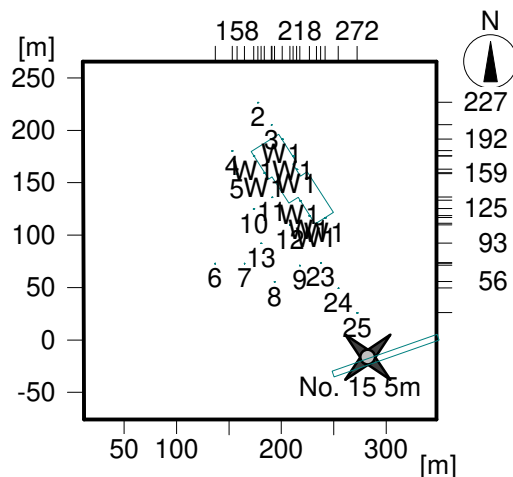
#### Measuring point for luminous intensity: No. 15 1.5m

Position : x = 282.51 m, y = -16.68 m, z = 1.50 m

| No. | Luminaire                           | Position |        |      | Lumin. intensity<br>I[kcd] |
|-----|-------------------------------------|----------|--------|------|----------------------------|
|     |                                     | x[m]     | y[m]   | z[m] |                            |
| 1   | Z,                                  | 272.22   | 26.18  | 4.00 | 0.156                      |
| 2   | Z,                                  | 254.32   | 49.72  | 4.00 | 0.084                      |
| 3   | EX1A,                               | 164.88   | 73.33  | 6.00 | 0.058                      |
| 4   | EX1A,                               | 157.65   | 158.67 | 6.00 | 0.055                      |
| 5   | Z,                                  | 237.43   | 73.94  | 4.00 | 0.049                      |
| 6   | EX1A,                               | 136.89   | 73.33  | 6.00 | 0.049                      |
| 7   | EX1A,                               | 193.40   | 55.95  | 6.00 | 0.043                      |
| 8   | EX1A,                               | 153.27   | 180.78 | 6.00 | 0.036                      |
| 9   | Denver Elite Wall, DEW.LA013.CGL.NR | 241.65   | 116.78 | 3.98 | 0.025                      |
| 10  | EX1A,                               | 217.60   | 71.48  | 6.00 | 0.024                      |
| 11  | Denver Elite Wall, DEW.LA013.CGL.NR | 233.51   | 111.54 | 3.98 | 0.024                      |
| 12  | EXA3,                               | 208.00   | 109.85 | 6.00 | 0.018                      |
| 13  | EXA3,                               | 191.07   | 136.32 | 6.00 | 0.016                      |
| 14  | EXA3,                               | 180.73   | 92.61  | 6.00 | 0.014                      |
| 15  | EXA3,                               | 173.70   | 125.40 | 6.00 | 0.011                      |
| 16  | Denver Elite Wall, DEW.LA013.CGL.NR | 226.65   | 118.75 | 3.98 | 0.005                      |
| 17  | Denver Elite Wall, DEW.LA013.CGL.NR | 217.73   | 133.27 | 3.98 | 0.003                      |
| 18  | Denver Elite Wall, DEW.LA013.CGL.NR | 173.56   | 175.78 | 5.98 | 0.002                      |
| 19  | Denver Elite Wall, DEW.LA013.CGL.NR | 183.72   | 159.59 | 5.98 | 0.002                      |
| 20  | EX1A,                               | 190.58   | 205.40 | 6.00 | 0.000                      |
| 21  | Denver Elite Wall, DEW.LA013.CGL.NR | 211.23   | 175.55 | 3.98 | 0.000                      |
| 22  | Denver Elite Wall, DEW.LA013.CGL.NR | 214.57   | 163.00 | 3.98 | 0.000                      |
| 23  | Denver Elite Wall, DEW.LA013.CGL.NR | 200.76   | 191.73 | 3.98 | 0.000                      |
| 24  | EX1A,                               | 177.54   | 226.68 | 6.00 | 0.000                      |

## 2.2 Calculation results, Exterior 1

### 2.2.2 Luminous intensity - No. 15 5m



#### Measuring point for luminous intensity: No. 15 5m

Position : x = 282.51 m, y = -16.67 m, z = 5.00 m

| No. | Luminaire                           | Position |        |      | Lumin. intensity<br>I[kcd] |
|-----|-------------------------------------|----------|--------|------|----------------------------|
|     |                                     | x[m]     | y[m]   | z[m] |                            |
| 1   | Denver Elite Wall, DEW.LA013.CGL.NR | 241.65   | 116.78 | 3.98 | 0.021                      |
| 2   | Denver Elite Wall, DEW.LA013.CGL.NR | 233.51   | 111.54 | 3.98 | 0.020                      |
| 3   | EX1A,                               | 164.88   | 73.33  | 6.00 | 0.013                      |
| 4   | EX1A,                               | 157.65   | 158.67 | 6.00 | 0.012                      |
| 5   | EX1A,                               | 136.89   | 73.33  | 6.00 | 0.011                      |
| 6   | EX1A,                               | 193.40   | 55.95  | 6.00 | 0.010                      |
| 7   | EX1A,                               | 153.27   | 180.78 | 6.00 | 0.008                      |
| 8   | EX1A,                               | 217.60   | 71.48  | 6.00 | 0.005                      |
| 9   | EXA3,                               | 208.00   | 109.85 | 6.00 | 0.004                      |
| 10  | Denver Elite Wall, DEW.LA013.CGL.NR | 226.65   | 118.75 | 3.98 | 0.004                      |
| 11  | EXA3,                               | 191.07   | 136.32 | 6.00 | 0.003                      |
| 12  | EXA3,                               | 180.73   | 92.61  | 6.00 | 0.003                      |
| 13  | Denver Elite Wall, DEW.LA013.CGL.NR | 217.73   | 133.27 | 3.98 | 0.003                      |
| 14  | EXA3,                               | 173.70   | 125.40 | 6.00 | 0.002                      |
| 15  | Denver Elite Wall, DEW.LA013.CGL.NR | 173.56   | 175.78 | 5.98 | 0.002                      |
| 16  | Denver Elite Wall, DEW.LA013.CGL.NR | 183.72   | 159.59 | 5.98 | 0.002                      |
| 17  | Denver Elite Wall, DEW.LA013.CGL.NR | 211.23   | 175.55 | 3.98 | 0.000                      |
| 18  | Denver Elite Wall, DEW.LA013.CGL.NR | 200.76   | 191.73 | 3.98 | 0.000                      |
| 19  | EX1A,                               | 190.58   | 205.40 | 6.00 | 0.000                      |
| 20  | EX1A,                               | 177.54   | 226.68 | 6.00 | 0.000                      |
| 21  | Denver Elite Wall, DEW.LA013.CGL.NR | 214.57   | 163.00 | 3.98 | 0.000                      |
| 22  | Z,                                  | 237.43   | 73.94  | 4.00 | 0.000                      |
| 23  | Z,                                  | 254.32   | 49.72  | 4.00 | 0.000                      |
| 24  | Z,                                  | 272.22   | 26.18  | 4.00 | 0.000                      |