



MOLONEYFOX
CONSULTING ENGINEERS

19.1849

**SITE LIGHTING DESIGN REPORT
ROSSHILL, CO. GALWAY
FOR ALBER DEVELOPMENTS LTD.**

DATE: 12/05/2021

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1.0 Executive Summary

This report outlines the design intent and considerations to be taken with regards to bat populations in conjunction with the proposed development, Rosshill, Co. Galway

The report outlines the lighting design as developed by Moloney Fox Consulting. As part of the lighting design process, we consulted with Galway City Council and MKO's Ecological Department. The lighting design has been developed with the following principal considerations:

- To minimise the impact of lighting on the bats natural habitat.
- Provide adequate illumination to contribute towards the safe use of the proposed pathways, roads and buildings.
- Contain the lighting within the site.
- Minimise light pollution and visual glare to the surrounding neighbourhood.
- Provide a visually interesting environment.

The complete external lighting installation will be designed in accordance with the regulations for electrical services as ETCI National Rules for Electrical Installations IS10101 as well as consideration of relevant publications including "The Effect of Street Lighting on Bats" (2008) by Matt Emery, and "Bats and Lighting" (2014), Emma Stone - University of Bristol/Bat Conservation Trust.

The predicted performance of the external lighting installations has been assessed in detail using Lighting Simulation software.

Our design intent comprises of column lighting for the pathways and site roads is described in Section 4.0. An indicative example of the type of proposed luminaires (light fittings) have been included, with accompanying images.

An accompanying layout drawing indicates the proposed locations of light fittings and the calculated light levels from the simulation.

The light fitting itself, is approved by Galway county Council, and is listed SEAI Triple E Register.

Attached is the fitting warranty and Technical Data Sheets.

2.0 Design Guidelines

A study of artificial light sources and controls was undertaken by Emery (2008) and concluded that shielding and masking of streetlights using internal or external louvres, can reduce light spillage by as much as 97%. He recommends that due to their high cost, they are used where the lighting is extremely close to bats. In other areas he recommends that shields can be used which reduce light spill by up to 40%.

Emery considered several lamp types in his analysis, but not however LED sources, which were not as prevalent for external streetlights then as they are now.

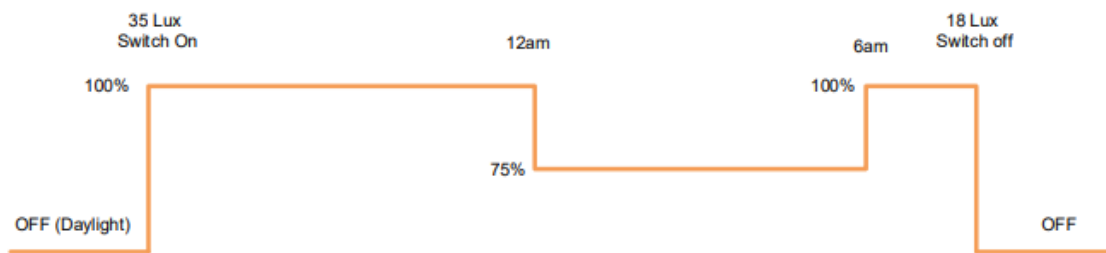
A comprehensive study by Emma Stone (2014) University of Bristol/Bat Conservation Trust, entitled “Bats and Lighting”, considers the optimum means to mitigate the effects of artificial lighting on bats. This study concludes that the type of light fitting with the lowest negative impact on bats are

- Narrow Spectrum Lights with no UV content
- Low pressure sodium and warm white LED*
- Directional downlights - illuminating below the horizontal plane which avoid light trespass into the environment.

The study highlights that warm Low-Pressure Sodium and Warm White LED sources have a low relative attractiveness for insects, and therefore least effect on bat prey items.

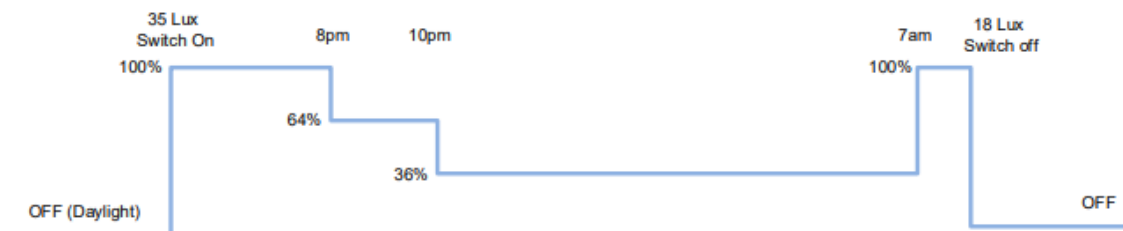
This study also proposed that lighting control regimes be considered such as dimming lights at certain times, in order to reduce illumination and spill. Public Lighting Profile 2A can be selected in this regard.

Profile 2A



In areas where bats are passing and feeding, light levels will be reduced further to a minimum of 1.2 lux whilst maintaining compliance with the regulations. Public Lighting Profile 4D will be selected in this regard.

Profile 4D





3.0 Proposed Site Lighting Design

The proposed scheme comprises primarily of LED luminaires on 6-metre-high poles for pathways and roadway areas, located as per drawing 19.1849/E100 and designed as per Appendix A of this report.

The quantity of luminaires has been calculated to achieve an average illuminance on pathways and roads in line with Class P3 of IS EN 13201/BS5489

This complies with Class P3 of IS EN 13201/BS5489 for residential roads and pathways with a S/P ratio of 1.4 (6.0lux average, 1.2 minimum)

The proposed light fitting/scheme has the following features which will help mitigate the effect of the artificial lighting on the bat population:

- Warm White LED light source – less attractive to insects, and a good light source to enable directional luminaires.
- Internal Louvres – to reduce light spill and eliminate upward light.
- Lowest possible design illuminance levels considering the nature of the site.

20 - 60W

100 - 277 Vac – 50/60 Hz – Class I

100 - 277 Vac – 50/60 Hz – Class II

12/24 Vdc (photovoltaic system)



Figure 1: Proposed Luminaire

Simulation Results

The results of the simulation calculations are indicated on drawing 19.1849/E100.

4.0 Conclusion

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The proposed lighting scheme has been carefully considered in order to minimise the effect on bat populations.

The Scheme comprises primarily of pole mounted Warm White LED fittings with internal louvres. The Warm White LED light source has the least negative impact on insects and bat prey items as identified in previous studies and is also a compact light source which enables easier control of the light spread.

The internal louvres minimise light spill, particularly to the rear of the fitting, and also completely eliminate any upward light from the fittings. Internal louvres are a recommended strategy for reducing the impact of lighting on bats as identified in previous studies.

The fittings at the will be angled up to 15 degrees to further reduce light spill.

The design light levels have been chosen in order to both comply with Irish Standards for external lighting, while at the same time maintaining light levels as low as practically possible considering the safety of people on site, the locality, and the proximity of bats to the site.

In addition, the site lighting profiles shall be selected as described in section 2 of this report, when human activity on the site will be lower in order to further reduce the impact of the site lighting on bats.

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Site 1

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Site 1

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Site 1

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Luminaire list

Φ_{total} 436050 lm
 P_{total} 5283.6 W

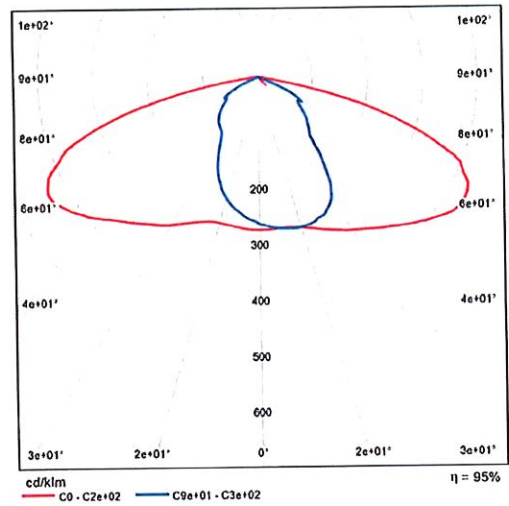
pcs.	Manufacturer	Article No.	Article name	P	Φ
102	MICROPLUS GERMANY		MPG-1A-50W	51.8 W	4275 lm

Product data sheet

MICROPLUS GERMANY MPG-1A-50W



P	51.8 W
Φ_{Lamp}	4500 lm
$\Phi_{Luminaire}$	4275 lm
η	94.99 %
Luminous efficacy	82.5 lm/W
CCT	3000 K
CRI	100



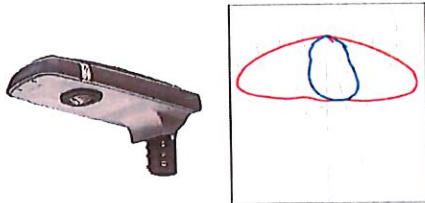
Polar LDC

Site 1
Luminaire layout plan



Site 1

Luminaire layout plan



Manufacturer	MICROPLUS GERMANY	P	51.8 W
Article name	MPG-1A-50W	$\Phi_{\text{Luminaire}}$	4275 lm
Fitting	1x MICROLED 2700K		

5 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	415.240 m / 78.709 m / 7.000 m	415.240 m	78.709 m	7.000 m	1
X-direction	5 pcs., Center - center, Distances not equal	441.459 m	80.292 m	7.000 m	2
		467.678 m	81.876 m	7.000 m	3
Arrangement	A1	493.896 m	83.460 m	7.000 m	4
		520.115 m	85.044 m	7.000 m	5

7 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	399.907 m / 181.431 m / 8.100 m	399.907 m	181.431 m	8.100 m	6
X-direction	7 pcs., Center - center, 30.542 m	430.332 m	184.093 m	8.100 m	7
		460.758 m	186.754 m	8.100 m	8
Arrangement	A2	491.183 m	189.416 m	8.100 m	9

Site 1

Luminaire layout plan

X	Y	Mounting height	Luminaire
521.609 m	192.078 m	8.100 m	10
552.034 m	194.740 m	8.100 m	11
582.459 m	197.402 m	8.100 m	12

3 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	325.484 m / 224.237 m / 8.100 m	325.484 m	224.237 m	8.100 m	13
X-direction	3 pcs., Center - center, 29.951 m	349.454 m	206.279 m	8.100 m	14
		373.423 m	188.320 m	8.100 m	15
Arrangement	A3				

3 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	252.580 m / 275.752 m / 8.100 m	252.580 m	275.752 m	8.100 m	16
X-direction	3 pcs., Center - center, 30.139 m	277.125 m	258.262 m	8.100 m	17
		301.669 m	240.772 m	8.100 m	18
Arrangement	A4				

3 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	183.029 m / 330.543 m / 8.100 m	183.029 m	330.543 m	8.100 m	19
X-direction	3 pcs., Center - center, 29.602 m	205.807 m	311.638 m	8.100 m	20
		228.586 m	292.733 m	8.100 m	21
Arrangement	A5				

Site 1

Luminaire layout plan

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	135.539 m / 347.604 m / 8.100 m	135.539 m	347.604 m	8.100 m	22
X-direction	2 pcs., Center - center, 26.259 m	161.032 m	341.307 m	8.100 m	23
Arrangement	A6				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	76.569 m / 350.624 m / 8.100 m	76.569 m	350.624 m	8.100 m	24
X-direction	2 pcs., Center - center, 30.151 m	106.688 m	349.232 m	8.100 m	25
Arrangement	A7				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	550.049 m / 176.043 m / 8.102 m	550.049 m	176.043 m	8.102 m	26
X-direction	2 pcs., Center - center, 34.750 m	551.350 m	141.317 m	8.100 m	27
Arrangement	A8				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	562.048 m / 153.840 m / 7.766 m	562.048 m	153.840 m	7.766 m	28

Site 1

Luminaire layout plan

X-direction	2 pcs., Center - center, 30.250 m	X	Y	Mounting height	Luminaire
Arrangement	A9	573.625 m	181.787 m	7.766 m	29

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	193.436 m / 31.162 m / 6.000 m	193.436 m	31.162 m	6.000 m	35
X-direction	2 pcs., Center - center, 26.067 m	195.244 m	57.166 m	6.000 m	36
Arrangement	A10				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	185.975 m / 6.375 m / 6.000 m	185.975 m	6.375 m	6.000 m	37
X-direction	2 pcs., Center - center, 26.127 m	211.972 m	3.767 m	6.000 m	38
Arrangement	A11				

3 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	227.168 m / -27.411 m / 6.000 m	227.168 m	-27.411 m	6.000 m	39
X-direction	3 pcs., Center - center, 26.222 m	226.969 m	-1.189 m	6.000 m	40
		226.769 m	25.032 m	6.000 m	41
Arrangement	A12				

3 x MICROPLUS GERMANY MPG-1A-50W

Site 1

Luminaire layout plan

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	317.373 m / 63.423 m / 7.000 m	317.373 m	63.423 m	7.000 m	42
X-direction	3 pcs., Center - center, 28.741 m	315.856 m	92.124 m	7.000 m	43
		314.339 m	120.826 m	7.000 m	44
Arrangement	A13				

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	297.592 m / 104.613 m / 7.000 m	297.592 m	104.613 m	7.000 m	45
X-direction	1 pcs., Center - center, 5.050 m				
Arrangement	A14				

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	313.245 m / 152.092 m / 6.000 m	313.245 m	152.092 m	6.000 m	46
X-direction	1 pcs., Center - center, 5.050 m				
Arrangement	A15				

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	313.095 m / 136.146 m / 6.000 m	313.095 m	136.146 m	6.000 m	47
X-direction	1 pcs., Center - center, 10.576 m				
Arrangement	A16				

Site 1

Luminaire layout plan

3 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	270.142 m / 48.403 m / 5.917 m	270.142 m	48.403 m	5.917 m	49
X-direction	3 pcs., Center - center, 19.988 m	250.218 m	46.813 m	5.936 m	50
		230.293 m	45.223 m	5.954 m	74
Arrangement	A17				

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	305.598 m / 55.384 m / 7.000 m	305.598 m	55.384 m	7.000 m	51
X-direction	1 pcs., Center - center, 40.550 m				
Arrangement	A18				

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	286.450 m / 59.171 m / 7.000 m	286.450 m	59.171 m	7.000 m	52
X-direction	1 pcs., Center - center, 40.550 m				
Arrangement	A19				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	382.084 m / 67.722 m / 7.000 m	382.084 m	67.722 m	7.000 m	53

Site 1

Luminaire layout plan

X-direction	2 pcs., Center - center, 22.000 m	X	Y	Mounting height	Luminaire
Arrangement	A20	380.932 m	89.692 m	7.000 m	54

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	395.083 m / 66.838 m / 7.000 m	395.083 m	66.838 m	7.000 m	55
X-direction	1 pcs., Center - center, 36.850 m				
Arrangement	A21				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	510.349 m / 156.514 m / 7.000 m	510.349 m	156.514 m	7.000 m	56
X-direction	2 pcs., Center - center, 19.705 m	490.678 m	155.372 m	7.000 m	57
Arrangement	A22				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	509.190 m / 144.002 m / 7.018 m	509.190 m	144.002 m	7.018 m	58
X-direction	2 pcs., Center - center, 20.249 m	488.972 m	142.879 m	7.009 m	59
Arrangement	A23				

2 x MICROPLUS GERMANY MPG-1A-50W

Site 1

Luminaire layout plan

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	510.961 m / 127.778 m / 7.000 m	510.961 m	127.778 m	7.000 m	60
X-direction	2 pcs., Center - center, 20.650 m	490.345 m	126.581 m	7.000 m	61
Arrangement	A24				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	495.200 m / 108.841 m / 7.000 m	495.200 m	108.841 m	7.000 m	62
X-direction	2 pcs., Center - center, 19.571 m	514.730 m	110.092 m	7.000 m	63
Arrangement	A25				

4 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	398.995 m / 143.186 m / 6.000 m	398.995 m	143.186 m	6.000 m	64
X-direction	4 pcs., Center - center, Distances not equal	419.823 m	144.443 m	6.000 m	65
		440.652 m	145.701 m	6.000 m	66
Arrangement	A26	461.480 m	146.959 m	6.000 m	67

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	386.157 m / 153.210 m / 6.000 m	386.157 m	153.210 m	6.000 m	68
X-direction	1 pcs., Center - center, 11.521 m				

Site 1

Luminaire layout plan

Arrangement	A27
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2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	369.533 m / 144.957 m / 7.034 m	369.533 m	144.957 m	7.034 m	69
X-direction	2 pcs., Center - center, 13.897 m	370.254 m	131.079 m	7.024 m	70
Arrangement	A28				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	459.078 m / 91.987 m / 7.000 m	459.078 m	91.987 m	7.000 m	71
X-direction	2 pcs., Center - center, Distances not equal	416.698 m	89.823 m	7.000 m	72
Arrangement	A29				

1 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	492.058 m / 97.423 m / 7.000 m	492.058 m	97.423 m	7.000 m	73
X-direction	1 pcs., Center - center, 19.821 m				
Arrangement	A30				

3 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire

Site 1

Luminaire layout plan

1st luminaire (X/Y/Z)	247.461 m / 113.356 m / 6.000 m	X	Y	Mounting height	Luminaire
X-direction	3 pcs., Center - center, 26.245 m	247.461 m	113.356 m	6.000 m	81
		249.033 m	87.158 m	6.000 m	82
Arrangement	A31	250.605 m	60.961 m	6.000 m	83

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	190.211 m / 79.918 m / 6.000 m	190.211 m	79.918 m	6.000 m	92
X-direction	2 pcs., Center - center, 27.785 m	195.887 m	107.117 m	6.000 m	93
Arrangement	A32				

2 x MICROPLUS GERMANY MPG-1A-50W

Type	Line arrangement	X	Y	Mounting height	Luminaire
1st luminaire (X/Y/Z)	370.726 m / 116.548 m / 6.938 m	370.726 m	116.548 m	6.938 m	100
X-direction	2 pcs., Center - center, 21.417 m	371.989 m	95.168 m	6.937 m	101
Arrangement	A33				

Individual luminaires

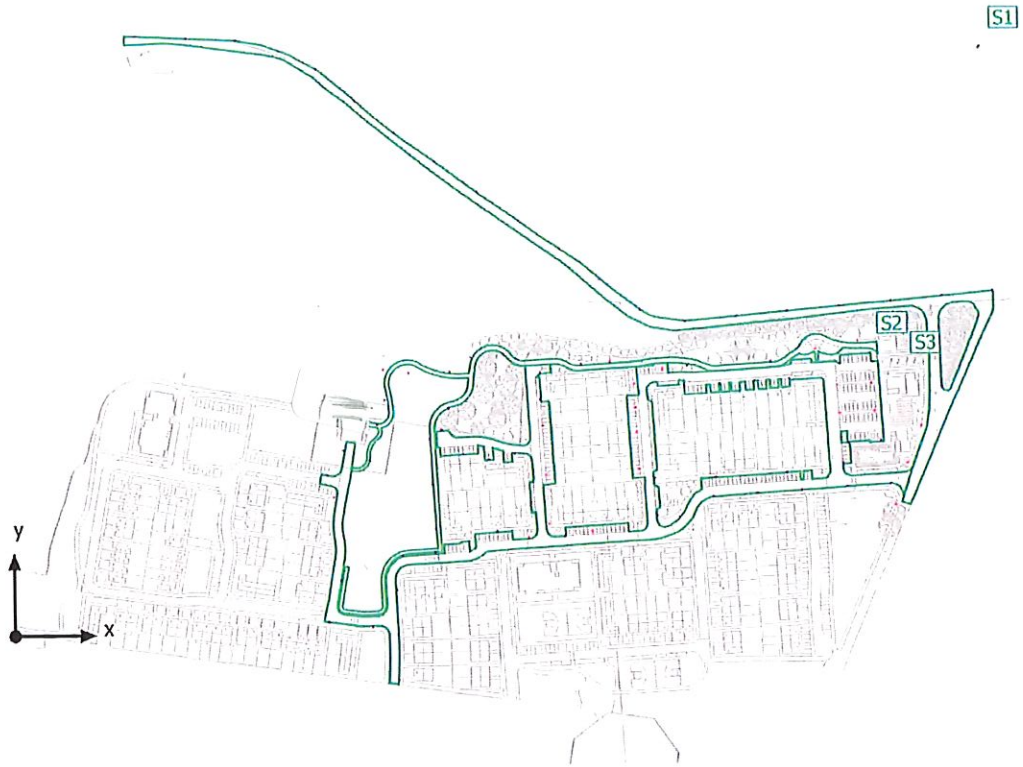
X	Y	Mounting height	Luminaire
538.758 m	118.961 m	8.100 m	30
530.477 m	97.038 m	8.100 m	31
523.121 m	72.719 m	8.100 m	32
188.928 m	124.684 m	6.000 m	33

Site 1

Luminaire layout plan

X	Y	Mounting height	Luminaire
211.733 m	101.280 m	6.000 m	34
254.476 m	118.650 m	7.000 m	48
220.058 m	154.285 m	6.000 m	75
220.830 m	136.412 m	6.000 m	76
215.730 m	121.912 m	6.000 m	77
235.330 m	152.212 m	6.000 m	78
259.670 m	152.928 m	6.000 m	79
258.790 m	131.296 m	6.000 m	80
271.870 m	161.228 m	6.000 m	84
291.726 m	162.284 m	6.000 m	85
337.887 m	156.610 m	6.000 m	86
355.361 m	158.224 m	6.000 m	87
400.861 m	155.276 m	6.000 m	88
450.361 m	157.424 m	6.000 m	89
476.850 m	164.152 m	6.000 m	90
501.480 m	168.948 m	6.000 m	91
186.666 m	92.485 m	6.000 m	94
267.220 m	104.565 m	7.000 m	95
282.203 m	101.208 m	7.000 m	96
343.534 m	58.565 m	7.000 m	97
365.212 m	58.670 m	7.000 m	98
306.814 m	75.621 m	7.000 m	99
326.995 m	56.327 m	7.000 m	102

Site 1
Calculation objects



Site 1

Calculation objects

Work planes

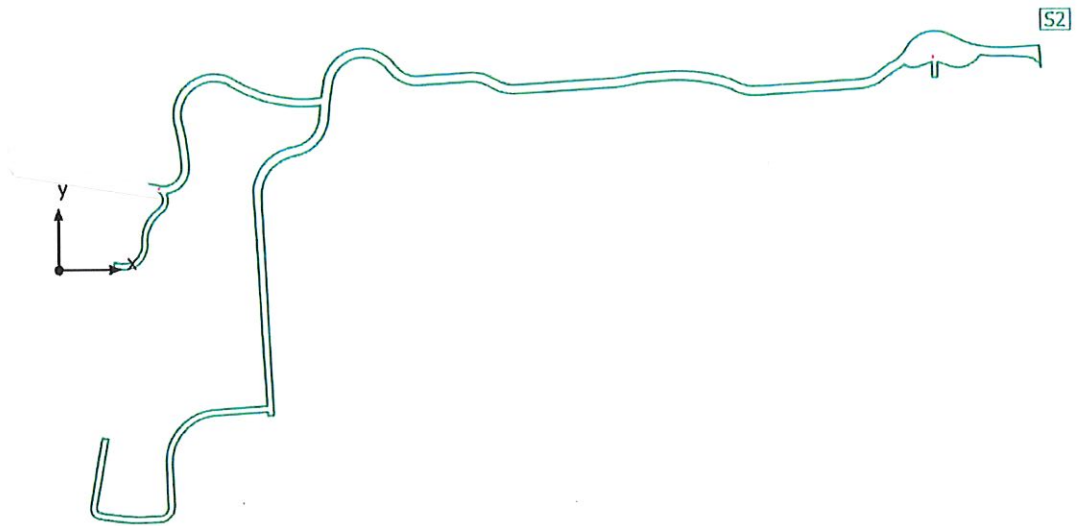
Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Rosshill Road) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	8.31 lx (≥ 7.50 lx) ✓	2.15 lx	17.3 lx	0.26	0.12	S1
Workplane (Garden) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	11.6 lx (≥ 7.50 lx) ✓	1.58 lx	37.2 lx	0.14	0.042	S2
Workplane (Street and parkings) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	12.3 lx (≥ 7.50 lx) ✓	3.04 lx	30.2 lx	0.25	0.10	S3

Utilisation profile: DIALux presetting, Standard (outdoor transportation area)

DP0004-21-1

Garden
Description

Garden
Calculation objects



Garden

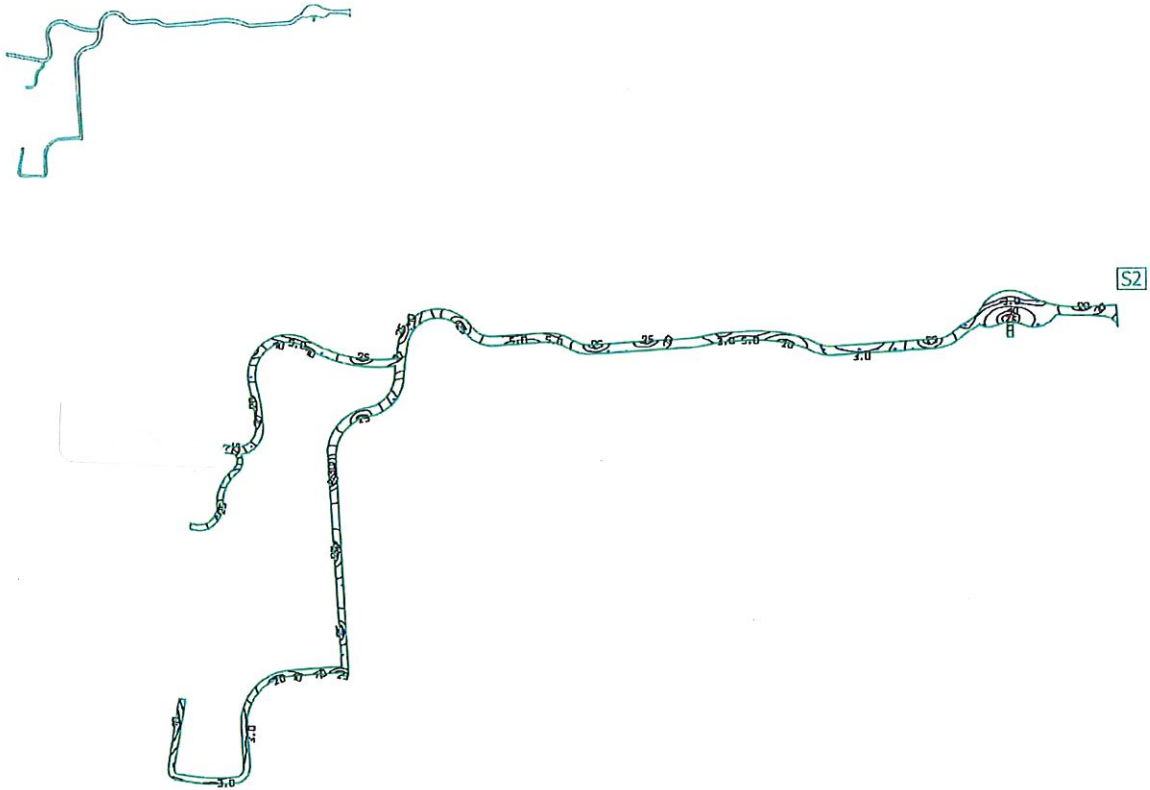
Calculation objects

Work planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Garden) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	11.6 lx (≥ 7.50 lx) ✓	1.58 lx	37.2 lx	0.14	0.042	52

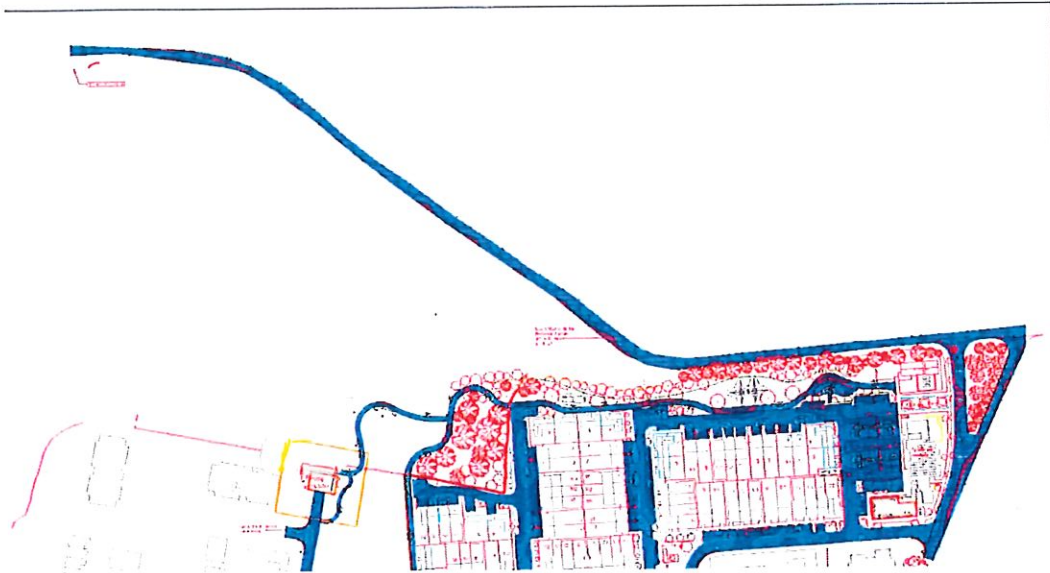
Utilisation profile: General circulation areas at outdoor workplaces, Ireland housing development

Garden
Workplane (Garden)



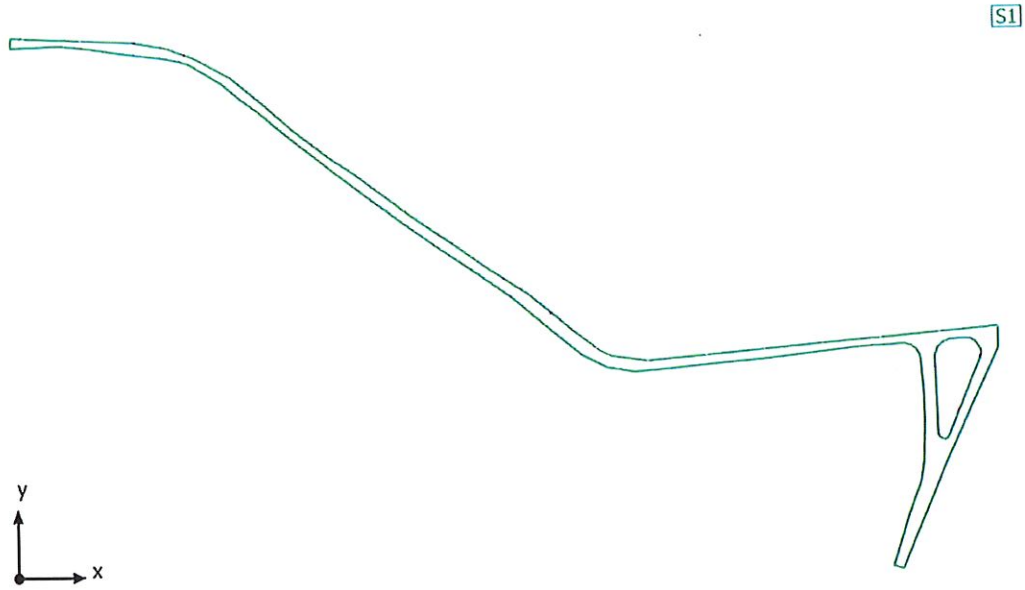
Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Garden) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	11.6 lx (≥ 7.50 lx) ✓	1.58 lx	37.2 lx	0.14	0.042	S2

Utilisation profile: General circulation areas at outdoor workplaces, Ireland housing development



Rosshill Road
Description

Rosshill Road
Calculation objects



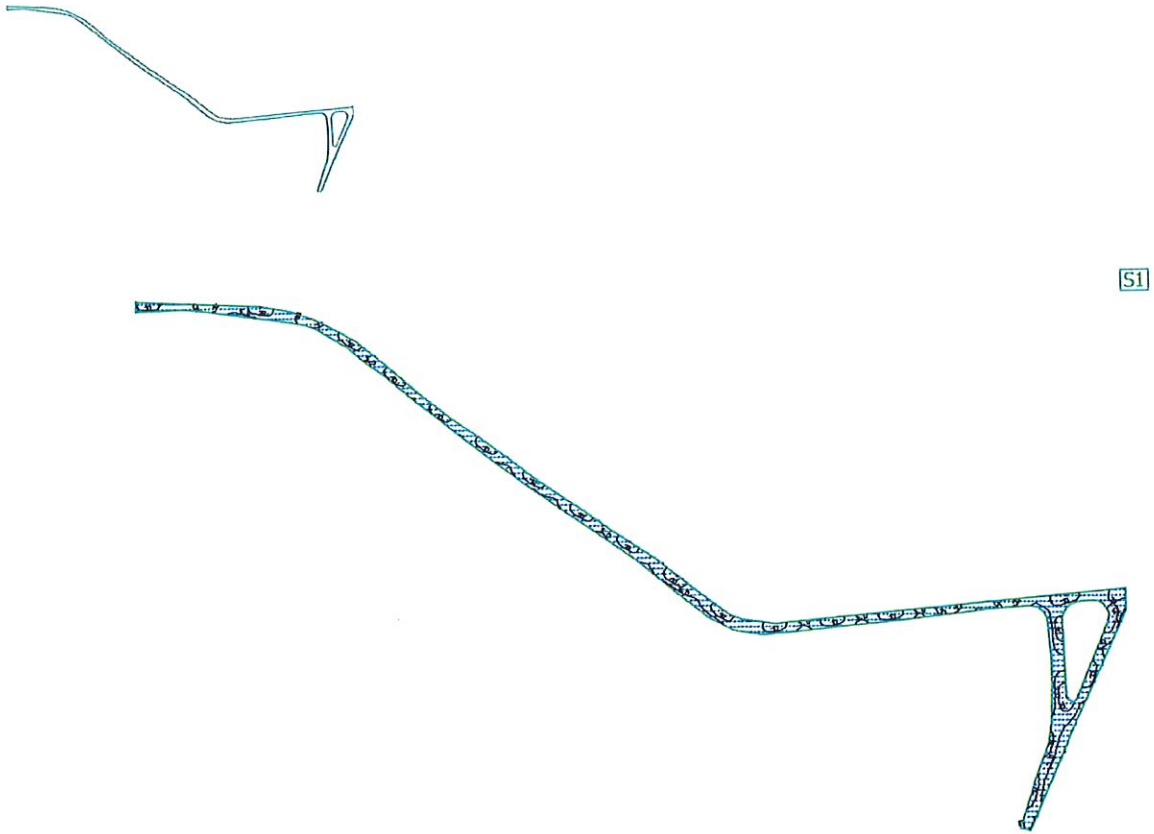
Rosshill Road
Calculation objects

Work planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Rosshill Road) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	8.31 lx (≥ 7.50 lx) ✓	2.15 lx	17.3 lx	0.26	0.12	S1

Utilisation profile: General circulation areas at outdoor workplaces, Regular vehicle traffic (max. 40km/h)

Rosshill Road
Workplane (Rosshill Road)



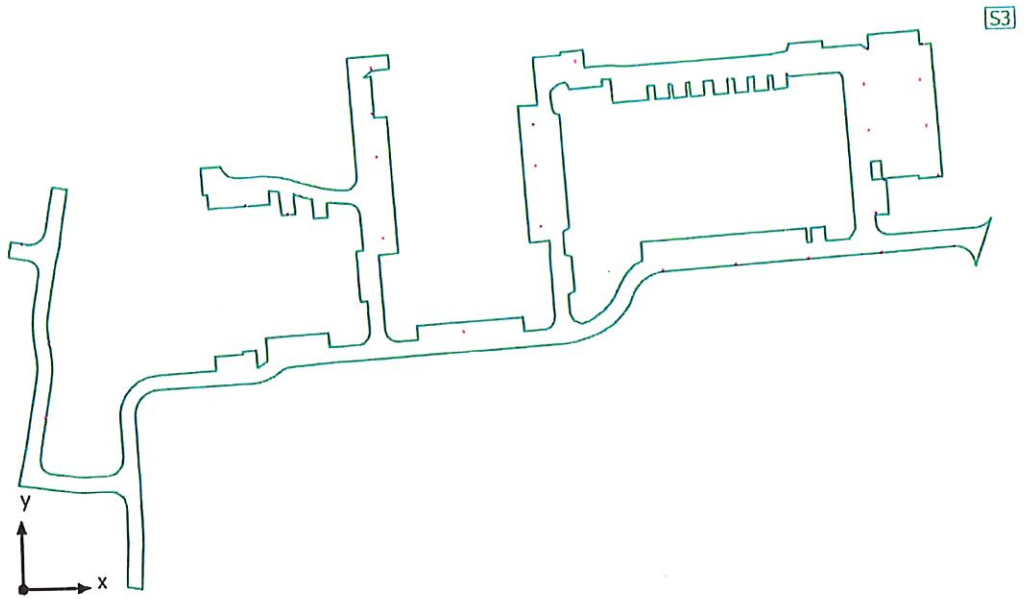
Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Rosshill Road) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	8.31 lx (≥ 7.50 lx) ✓	2.15 lx	17.3 lx	0.26	0.12	S1

Utilisation profile: General circulation areas at outdoor workplaces, Regular vehicle traffic (max. 40km/h)



Street and parkings
Description

Street and parkings
Calculation objects



Street and parkings

Calculation objects

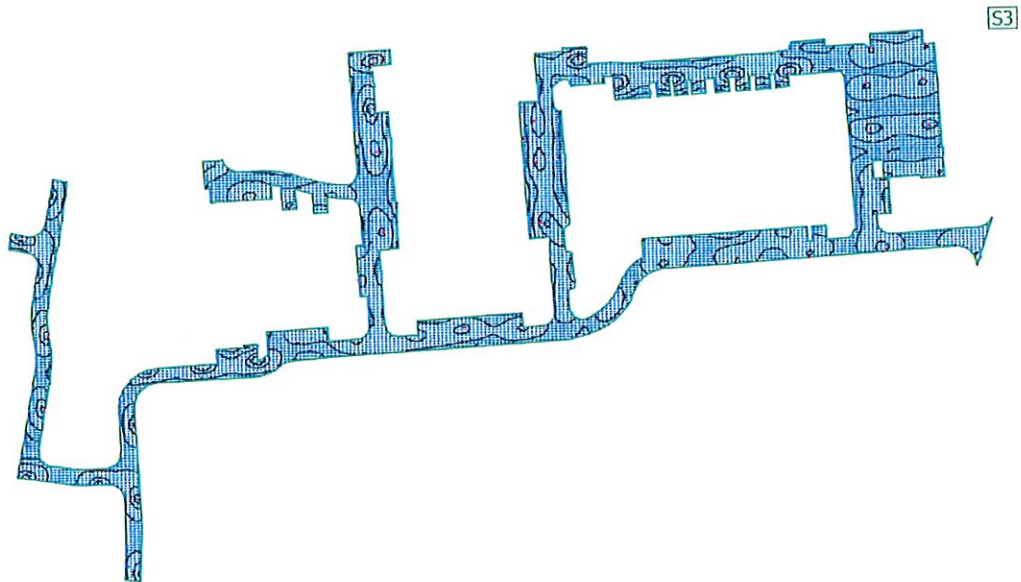
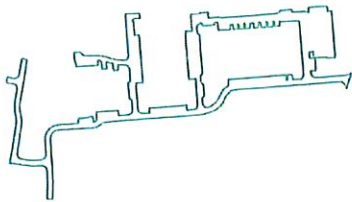
Work planes

Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Street and parkings) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	12.3 lx (≥ 7.50 lx) ✓	3.04 lx	30.2 lx	0.25	0.10	S3

Utilisation profile: General circulation areas at outdoor workplaces, Regular vehicle traffic (max. 40km/h)

Street and parkings

Workplane (Street and parkings)



Properties	\bar{E} (Target)	E_{min}	E_{max}	g_1	g_2	Index
Workplane (Street and parkings) Perpendicular illuminance (adaptive) Height: 0.000 m, Wall zone: 0.000 m	12.3 lx (≥ 7.50 lx) ✓	3.04 lx	30.2 lx	0.25	0.10	S3

Utilisation profile: General circulation areas at outdoor workplaces, Regular vehicle traffic (max. 40km/h)

MPG-1N

Industrial design nº 002419168

20 - 60W

100 - 277 Vac – 50/60 Hz – Class I

100 - 277 Vac – 50/60 Hz – Class II

12/24 Vdc (photovoltaic system)



General information



Options



Estas nuevas luminarias **MPG-1N** incorporan los nuevos **MICROLED PLUS** de última generación de **200Lm/w**, con certificado **TÜV**, además de novedosas lentes de vidrio de alta pureza (96%) y baja absorción (*menos de un 5%*), que presentan una geometría divergente-asimétrica, **generando un haz lumínico de mayor extensión y uniformidad**.

Fabricado en aluminio de alta resistencia a la corrosión; disponible en los colores que adjuntamos, entre sus cualidades destaca su solidez y durabilidad, además de una mayor resistencia a los rayos UV, lo que reduce los costes de mantenimiento.

Instalamos en su interior, arrancadores con certificado **TÜV** y con gran protección frente a las sobre tensiones, típicas de las redes de distribución públicas.

La gama **MPG-1N** de luminarias se suministra en un rango de tensión 100 - 277VAC, opcional 12 - 24VDC; así como en diversas temperaturas de color (3.000 - 5.500K).



Die modernste Generation der TÜV-zertifizierten **MPG-1N** Leuchten beinhaltet den neuen **MICROLED PLUS** mit **200Lm/w**. Integriert sind innovative Glas-Linsen von hohem Reinheitsgrad (**96 %**) und sehr geringer Absorption (**< 5 %**). Ihre divergent-asymmetrische Geometrie ermöglicht dem **Lichtstrahl eine erweiterte Ausdehnung** bei gleichmäßiger Tiefe.

Für die Herstellung dieser Leuchte wird **korrosionsbeständiges Aluminium** verwendet – daher zeichnet sie sich durch Härte, Langlebigkeit sowie einer erhöhten Belastbarkeit gegen UV-Strahlen aus, was die Wartungskosten erheblich reduziert.

Zusätzlich installiert ist ein **TÜV-zertifizierter Regler mit hohem Überspannungsschutz** gegen die in öffentlichen Stromnetzen häufig vorkommenden Spannungsschwankungen.

Die Leuchten der Serie **MPG-1N** werden für den Spannungsbereich von **100 – 277VAC**, oder optional auch in **12 – 24VDC** in den Lichtfarben (**3.000 – 5.500 K**) angeboten.



This new streetlamp **MPG-1N** incorporate the latest generation of **MICROLED PLUS** of **200Lm/w**, with **TÜV** certificate, as well as novel lens made with high purity glasses (**96%**) and low absorption (*less than 5%*) with a divergent-asymmetric geometry, **generating a greater extent and uniformity light beam**.

Made entirely with **aluminium** high corrosion resistant, available in colours attached. Among its qualities stand out its hardness and long life, besides a greater UV resistance, than reduce the maintenance cost.

Drivers installed in, with **TÜV** Certificate and with great protection to overvoltage, typical by public distribution grid.

MPG-1N series can be supplied at different voltage ranges: **100 – 277VAC**, optional **12 – 24VDC**, as well as in various color temperatures (**3.000 – 5.500K**).



Estas novas luminárias **MPG-1N** incorporam os novos Microled Plus de última geração de **200Lm/w**, com certificado **TÜV**, e ainda lentes de vidro de alta pureza (**96%**) e baixa absorção (*menos de 5%*), que apresentam uma geometria divergente-assimétrica, **gerando um feixe lumínico de maior extensão e uniformidade**.

Fabricadas integralmente a partir de um **alumínio** muito resistente à corrosão; disponíveis nas cores que anexamos, entre as suas qualidades destacam-se a sua dureza e a longa duração, além de uma maior resistência aos raios UV, o que reduz os custos de manutenção.

Incluem no seu interior, arrancadores com certificado **TÜV** e com grande proteção às sobretensões, típicas da rede de distribuição públicas.

A gama de luminárias **MPG-1N** é fornecida com tensões entre os **100 – 277VAC**, opcional **12 – 24 VDC**; assim como em diferentes temperaturas de cor (**3.000 – 5.500K**).

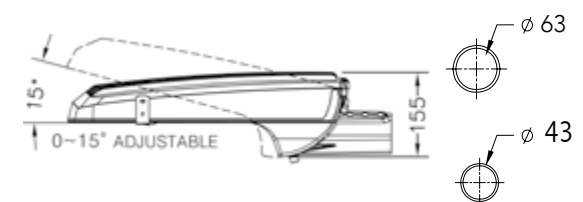
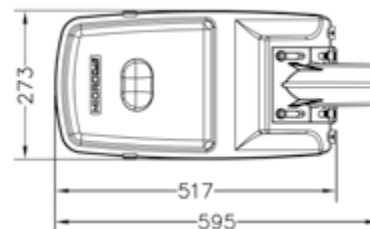
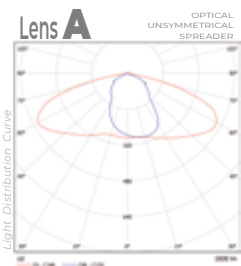


Ces nouvelles luminaires **MPG-1N** incorporent les nouveaux **MICROLED PLUS** de dernière génération de **200Lm/w**, avec certifica **TÜV**, avec de nouvelles lentilles de verre de haute pureté (**96%**) et baisse absorption (*moins de 5%*), qui présentent une géométrie divergent-asymétrique, **en produisant un faisceau lumineux plus étendu et uniformité**.

Fabriquée complètement à partir d'un **aluminium** très résistant à la corrosion ; disponible dans les couleurs que nous joignons, entre ses qualités il souligne sa dureté et sa longue vie, avec une plus grande résistance aux rayons UV, ce qui réduit les coûts de maintien.

Ils installent dans leur intérieur, démarreurs avec certifica **TÜV** et avec une grande protection face aux surtensions, typiques des réseaux de distribution publics.

La gamme de luminaires **MPG-1N** est fourni dans une gamme de tension **100 – 277VAC**, en option **12 – 24VDC**; ainsi que diverses température de couleur (**3.000 – 5.500K**).



Rendimiento real del equipo en pruebas de laboratorio a 25°C (150/160 Lm/w)

Actual performance of the equipment in laboratory tests at 25°C (150/160 Lm / w)

REFERENCE MODEL	OPTIONS					TECHNICAL CHARACTERISTICS OF THE STREETLAMP											
	CONTROL	NOMINAL POWER	VOLTAGE	TEMPERATURE	LENS TYPE	STREETLAMP POWER	LUMINOUS FLUX	WEIGHT	SIZE STREETLAMP	INPUT VOLTAGE	CONSTRUCTION STREETLAMP	SYSTEM LIGHTING	WORKING TEMPERATURE	EFFICIENCY	PROTECTION		
															IP	IK	ELECTRIC
MPG-1N	/ST /PP /TG /FC /DM	/020	/VAC		/A	20 W	3.000 Lm	6 kg	540 x 255 x 100 mm	100 - 277 Vac or 12 Vdc or 24 Vdc	INJECTED ALUMINIUM	1 MICROLED PLUS 32 Vdc	- 40° C ~ + 55° C	92 %	IP66	IK08 (option IK10)	TYPE I or TYPE II
		/030	/VDC12	/3.0		30 W	4.500 Lm										
		/040	/VDC24	/4.0		40 W	6.000 Lm										
		/050	/VACII	/4.5		50 W	7.500 Lm										
		/060	/VACPI	/5.5		60 W	9.000 Lm										
		/060	/VACIIP														

/VACPI: Electrical application CLASS I withstand on overvoltage (10 KV)
/VACIIP: Electrical application CLASS II withstand on overvoltage (10 KV)

Certificado de Garantía

Warranty certificate



MICROPLUS GERMANY garantiza sus productos contra todo defecto de fabricación, en condiciones correctas de funcionamiento y servicio, por el plazo que se reseña a contar desde la fecha de entrega a primer comprador, según fecha de factura o albarán de entrega de **MICROPLUS GERMANY** si la entrega es posterior:

100.000 Horas para el **Microled Plus**, **10 AÑOS** en todos los productos salvo los que se especifique **5 AÑOS**.

La garantía comprende la reparación o sustitución de los productos reconocidos defectuosos por nuestro Personal Técnico y/o laboratorio de ensayo, de acuerdo con las **CONDICIONES GENERALES DE GARANTÍA MICROPLUS GERMANY** de las que lo aquí recogido resulta sólo un extracto, así como de acuerdo con las **CONDICIONES PARTICULARES DE GARANTÍA** de cada uno de los productos o líneas de producto comercializados bajo la marca **MICROPLUS GERMANY**

Se excluyen los casos de fuerza mayor, desgaste natural, indebida manipulación y/o manejo, no seguimiento de instrucciones, mala conservación, uso inadecuado, fenómenos atmosféricos no contemplados expresamente o cualquier otro defecto o trastorno no imputable a los productos, equipos o Personal Técnico de **MICROPLUS GERMANY**.

MICROPLUS GERMANY se reserva la facultad de suministrar un modelo diferente de producto y/o componente para atender las reclamaciones en garantía para el caso de que el modelo original hubiera dejado de fabricarse.



MICROPLUS GERMANY garantiert, dass ihre Produkte gegen alle Fabrikationsfehler in einwandfreiem Betriebszustand und Service für die Berichtsperiode ab dem Zeitpunkt der Lieferung an den ersten Käufer, das Datum der Rechnung oder Lieferschein **MICROPLUS GERMANY**, falls die Lieferung ist später:

100.000 Stunden für das **Microled Plus**, 10 JAHRE in allen Produkten außer den angegebenen 5 JAHREN.

Die Abdeckung umfasst die Reparatur oder den Ersatz von anerkannten fehlerhaften Produkten von unserem technischen und / oder Prüflabor gemäß **GENERAL SICHERUNG MICROPLUS GERMANY** davon hier gesammelt ist nur ein Auszug, und nach **BESONDERE** Garantiebedingungen jedes der Produkte oder Produktlinien unter der Marke vermarktet **MICROPLUS GERMANY**.

Fälle höhere Gewalt, natürlicher Abnutzung, unsachgemäßer Handhabung und / oder Management-Versagen, Anweisungen zu befolgen, schlechter Wartung, unsachgemäßer Gebrauch, atmosphärische Erscheinungen nicht ausdrücklich vorgesehen ist oder ein anderer Mangel oder den Zustand der nicht auf Produkte, sind Geräte oder technisches Personal ausgeschlossen, von **MICROPLUS GERMANY**.

MICROPLUS GERMANY behält sich das Recht vor, ein anderes Modell des Produkts und / oder die Komponente liefern Garantieansprüche für den Fall, dass das ursprüngliche Modell wird nicht mehr hergestellt zu erfüllen.



MICROPLUS GERMANY guarantees its products against any manufacturing defect, in correct conditions of operation and service, for the period that is reviewed from the date of delivery to first buyer, according to date of invoice or delivery note of **MICROPLUS GERMANY** if the delivery is later:

100,000 Hours for the **Microled Plus**, 10 YEARS in all products except those specified 5 YEARS.

The guarantee includes the repair or replacement of the products recognized as defective by our Technical Staff and / or test laboratory, in accordance with the **GENERAL CONDITIONS OF MICROPLUS GERMANY WARRANTY**, of which the information collected here is only an extract, as well as in accordance with the **SPECIAL GUARANTEE CONDITIONS** for each of the products or product lines marketed under the **MICROPLUS GERMANY** brand

Excluded are cases of force majeure, natural wear and tear, improper handling and / or handling, failure to follow instructions, poor maintenance, improper use, atmospheric phenomena not expressly contemplated or any other defect or disorder not attributable to products, equipment or technical personnel of **MICROPLUS GERMANY**.

MICROPLUS GERMANY reserves the right to supply a different model of product and / or component to handle warranty claims in the event that the original model has ceased to be manufactured.



MICROPLUS GERMANY garante seus produtos contra todos os defeitos de fabricação em bom estado de funcionamento e serviço, por um prazo que inicia a partir da data de entrega ao primeiro comprador, data da fatura ou nota de entrega **MICROPLUS GERMANY** se a entrega for posterior:

100.000 horas para o **Microled Plus**, 10 ANOS em todos os produtos, exceto os especificados em 5 ANOS.

A cobertura inclui a reparação ou substituição de produtos defeituosos reconhecidos por nosso laboratório técnica e / ou teste, de acordo com as **CONDIÇÕES GERAIS DE GARANTIA MICROPLUS GERMANY** aqui recolhida é somente uma parte, e de acordo com condições de garantia específico a cada um dos produtos ou linhas de produtos comercializados sob a marca **MICROPLUS GERMANY**.

São excluídos os de força maior, o desgaste natural, manipulação imprópria e / ou falha de gestão de seguir as instruções, má manutenção, uso indevido, fenômenos atmosféricos não estejam expressamente previstos ou qualquer outro defeito ou condição não atribuível a produtos, equipamentos ou pessoal técnico são excluídas, da **MICROPLUS GERMANY**.

MICROPLUS GERMANY reserva-se o direito de fornecer um modelo diferente de produto e / ou componente para atender reivindicações de garantia em caso de que o modelo original não é mais fabricado.



MICROPLUS GERMANY garantit ses produits contre tout défaut de fabrication en bon état de fonctionnement et de service pour la période considérée à compter de la date de livraison au premier acheteur, la date de la facture ou le bon de livraison **MICROPLUS GERMANY** si la livraison est plus tard:

100 000 heures pour le **Microled Plus**, 10 ANS pour tous les produits sauf ceux spécifiés 5 ANS.

Le couvercle comprend la réparation ou le remplacement des produits défectueux reconnus par notre laboratoire technique et / ou d'essai, conformément à **MICROPLUS GERMANY GENERAL ASSURANCE** de celui-ci est rassemblé ici seulement un extrait, et selon **CONDITIONS PARTICULIÈRES DE GARANTIE** pour chacun des produits ou gammes de produits commercialisés sous la marque **MICROPLUS GERMANY**

cas de force majeure, l'usure naturelle, une mauvaise manipulation et / ou de l'échec de la direction à suivre les instructions, un mauvais entretien, une mauvaise utilisation, les phénomènes atmosphériques ne sont pas expressément prévus ou tout autre défaut ou non imputables à des produits, des équipements ou du personnel technique sont exclus, de **MICROPLUS GERMANY**.

MICROPLUS GERMANY se réserve le droit de fournir un modèle différent du produit et / ou d'un composant pour répondre aux demandes de garantie dans le cas où le modèle original ne soit plus fabriqué.

MICROPLUS GERMANY garantiza sus productos contra todo defecto de fabricación, en condiciones correctas de funcionamiento y servicio, por el plazo que se reseña a contar desde la fecha de entrega a primer comprador, según fecha de factura o albarán de entrega de **MICROPLUS GERMANY** si la entrega es posterior:

- 100.000 Horas para el Microled Plus
- 10 AÑOS en líneas MPG y KS. Garantía total de producto.
- 5 AÑOS en resto de productos de Iluminación.



La garantía comprende la reparación o sustitución de los productos reconocidos defectuosos por nuestro Personal Técnico y / o laboratorio de ensayo, de acuerdo con las CONDICIONES GENERALES DE GARANTÍA **MICROPLUS GERMANY** de las que lo aquí recogido resulta sólo un extracto, así como de acuerdo con las CONDICIONES PARTICULARES DE GARANTÍA de cada uno de los productos o líneas de producto comercializados bajo la marca **MICROPLUS GERMANY**.

Se excluyen los casos de fuerza mayor, desgaste natural, indebida manipulación y / o manejo, no seguimiento de instrucciones, mala conservación, uso inadecuado, fenómenos atmosféricos no contemplados expresamente o cualquier otro defecto o trastorno no imputable a los productos, equipos o Personal Técnico de **MICROPLUS GERMANY**.

MICROPLUS GERMANY se reserva la facultad de suministrar un modelo diferente de producto y / o componente para atender las reclamaciones en garantía para el caso de que el modelo original hubiera dejado de fabricarse.

MICROPLUS GERMANY guaranteed its products against defects in workmanship, under proper operation and service for the period indicated as of the date of delivery to the first purchaser, invoice 's date or delivery note if the delivery by **MICROPLUS GERMANY** is posterior, as follow:

- 100,000 hour for Microled Plus
- 10 YEARS for its MPG and KS 's lines. Full guarantee for the product.
- 5 YEARS in the other lighting products



he warranty covers the repair or replacement of defective products recognized by our testing laboratory and / or our Technical Staff in accordance with the **MICROPLUS GERMANY GENERAL WARRANTY CONDITIONS** by every product or product 's line, as ir described herein, just like an example, as well as, according to the **SPECIAL GUARANTEED CONDITIONS** or evary and / or product 's lines marketed under the brand **MICROPLUS GERMANY**

Cases of force majeure, natural wear, improper handling and / or management failure to follow instructions also poor maintenance, improper use, atmospheric phenomena not dealt or any other defect or condition not attributable to the products, equipment or technical personnel are excluded by **MICROPLUS GERMANY**.

GERMANY MICROPLUS keeps the right to provide a different model of product and / or component to meet warranty claims in the event that the original model is no longer manufactured.

MICROPLUS GERMANY garantie ses produits contre tout défaut de fabrication, en conditions correctes de fonctionnement et service, pour un délai indiqué à compter de la date de livraison au premier acheteur, suivant date de facture ou bordereau de livraison de **MICROPLUS GERMANY** si la livraison est postérieure.

- 100.000Heures pour le Microled Plus
- 10 ANS en lignes MPG et KS. Garantie totale du produit.
- 5 ANS pour le reste des produits d'éclairage



La garantie comprend la réparation ou le remplacement des produits reconnus défectueux par notre Personnel Technique et ou laboratoire d'essais, en accord avec les CONDITIONS GÉNÉRALES DE GARANTIE **MICROPLUS GERMANY**, des quelles ce qui est ci-dessus indiqué n'est qu'un extrait, ainsi qu'en accord avec les CONDITIONS GÉNÉRALES DE GARANTIE de chaque produit ou séries de produits commercialisés sous la marque **MICROPLUS GERMANY**.

Sont exclus les cas de force majeure, usure naturelle, manipulation incorrecte et / ou utilisation sans suivre le respect des instructions, mauvaise conservation, utilisation inadaptée, phénomènes atmosphériques non inclus expressément ou tout autre défaut ou faille non imputable aux produits, équipements ou Personnel Technique de **MICROPLUS GERMANY**.

MICROPLUS GERMANY se réserve la faculté de fournir un modèle différent de produit et / ou composant pour répondre aux demandes de garantie au cas ou le modèle original ne serait plus fabriqué.

MICROPLUS GERMANY garante os seus produtos contra defeitos de fabrico, em condições de correcto funcionamento, a partir da data de entrega factura, ao primeiro comprador, data da factura ou nota de entrega, se a entrega de **MICROPLUS GERMANY** é mais tarde:

- 100.000 mil horas para o Microled Plus
- 10 Anos de garantia nas linhas MPG e KS. Garantia total do Produto
- 5 Anos no resto dos produtos de iluminação



A garantia cobre a reparação ou substituição de produtos defeituosos reconhecidos pelo nosso laboratório de testes ou Equipe Técnica, de acordo com as condições gerais de GARANTIA **MICROPLUS GERMANY** aqui apresentadas em resumo, bem como de acordo com as CONDIÇÕES ESPECIAIS garantia a cada produto ou linhas de produtos comercializados sob a marca **MICROPLUS GERMANY**.

Excluem-se os casos de força maior, desgaste natural, manipulação imprópria e / ou não observância das instruções montagem e funcionamento, falta de manutenção, uso indevido, fenómenos atmosféricos não contemplados, ou qualquer outro defeito ou condição não atribuível aos produtos, equipamentos ou pessoal técnico são excluídos de **MICROPLUS GERMANY**.

MICROPLUS GERMANY reserva-se o direito de fornecer um modelo diferente de produto e / ou componente para atender às reivindicações de garantia no caso do modelo original ter deixado de se fabricar ou ter sofrido atualização técnica, sem prejuízo da qualidade e eficiência do equipamento a fornecer.

Die Garantie von **MICROPLUS GERMANY**-Produkten gilt bei jeder Art von Produktionsfehler, wenn das Produkt ordnungsgemäß verwendet und bedient wurde. Die Garantiezeit gilt ab Lieferdatum an den Erstkäufer oder ab Rechnungs- bzw. Lieferscheindatum, wenn die Lieferung später erfolgt:

- 100.000 Stunden für die Microled Plus
- 10 JAHRE umfassende Produktgarantie für die Produktlinien MPG und KS.
- 5 JAHRE für alle übrigen Beleuchtungsprodukte.



Garantieleistungen sind Reparatur oder Ersatz der von unseren Technikern oder dem Testlabor als schadhaft anerkannten Produkte in Übereinstimmung mit den ALLGEMEINEN GARANTIEBEDINGUNGEN VON **MICROPLUS GERMANY**, von denen Sie hier nur einen Auszug lesen, sowie in Übereinstimmung mit den BESONDEREN GARANTIEBEDINGUNGEN, die für die einzelnen Produkte oder Produktlinien der Marke **MICROPLUS GERMANY** beschrieben sind.

Ausgeschlossen von der Garantie sind Schäden durch höhere Gewalt, natürlichen Verschleiß, unsachgemäße Handhabung und / oder Bedienung, Nichteinhalten der Gebrauchsanleitung, mangelhafte Aufbewahrung, zweckwidrige Verwendung, Wetterphänomene, die nicht ausdrücklich aufgeführt sind, oder jeglicher andere Mangel oder Störung, die nicht dem Produkt, der Beleuchtungsanlage oder dem technischen Personal von **MICROPLUS GERMANY** zugeschrieben werden können.

GERMANY MICROPLUS behält sich bei Garantieleistungen das Recht vor, ein anderes Produktmodell und / oder eine andere Komponente zu liefern, falls das Originalprodukt nicht mehr hergestellt wird..



WESTIRE (16) SIXTEEN YEARS GUARANTEE

WESTIRE Ireland Limited, Industrial Estate, Belmullet, County Mayo, F26TE81, Ireland hereafter designated and trading as "WESTIRE", guarantees that its Photocell Products are free from defects in their components and manufacturing for a period of (16) sixteen years from the date of installation. This date guarantee calendar is molded into the base section of each photocell so as the user can indicate or inscribe when the photocell was installed. If no date is indicated or inscribed, then the date of manufacturer will comply as the installation date.

Definitions:

WESTIRE: WESTIRE Ireland Limited, producer of the products covered by this guarantee.

Products: WESTIRE Photocells one and Two-Part NEMA and Hard-Wired types and all identified by WESTIRE logo, reference number, and serial number.

End-User: The company who acquired the Products for installation in light fixtures and lanterns owned directly by the company or for a third party under an outsourcing contract or a financial construction. Typically, the End-User is the legal owner of the Products.

The Guarantee is applicable and valid only when these products are used with appropriate Road and Street Lighting that is in conformity with the standards in force in the European Union. This guarantee is reserved only for the company who acquired the Products and following presentation of proof of purchase. This guarantee is null and void if the Products are not used in a normal way, or if WESTIRE determines that the defect is caused by, but not limited to:

- Short circuiting power factor correction capacitors if fitted.
- Abnormalities in the gas-discharge arc tube.
- Incorrect wiring insulation shorting to earthing parts or metal parts.
- Incorrect fusing or means of protection against abnormal mains conditions in the connected load. (e.g. Lightning discharge, unusual mains transients, mains surges, mains brown outs etc.)
- Ingress of water, condensation into the Luminaire or Electrical Cabinets. (applicable to WESTIRE internal fitted photocells only and not accessories and external fitted photo electric lighting controls)
- Type of load connected to the WESTIRE Product.
- Any unusual abnormality in the incoming mains supply or the mains supply voltages as specified in our fitting instruction or catalogues. (The mains supplied to WESTIRE Products must conform to the specification as outlined in the standard for the supply of AC mains in force)
- Modifications, tampering or any unauthorized attachments connected to the Products.
- Accidental falls or misuse.
- Unsuitable environmental conditions.
- Operation beyond the useful life of the Products.
- Malfunctioning Third Party components or products connected to the WESTIRE Products.

WESTIRE Products are only intended for the control of all types of Reactive Outdoor and Public Lighting Loads including: LED Outdoor and Public Lighting and are not designed or guaranteed for use in the control of other loads not like outdoor lighting loads. WESTIRE Products should be installed as per WESTIRE's fitting instructions and any other necessary additional fitting recommendations supplied by WESTIRE. WESTIRE always should be made aware as to the type of loads its lighting control Products are controlling or connected to.

If a Product becomes defective according to the terms of this guarantee, WESTIRE will examine the said Product, and, only at its own discretion, proceed to repair or replace it. WESTIRE will then ship a Product similar in specification to the said defective Product in terms of its performance back to the user if it finds that the malfunction was because of a faulty component or design defect. If it is because of a faulty component and this was due to the component supplier's quality control or workmanship, WESTIRE will hold the component supplier fully responsible for same. WESTIRE will make every effort to pursue the component supplier for costs associated with replacement and the fitting of the Product arising from the defect. Those said costs will be passed on to the user of the defective WESTIRE Product when received including any additional extra compensation claimed on behalf of the End-User. The only responsibility and exclusive recourse WESTIRE will have concerning the recognized defects, will be to repair or replace the product in question. WESTIRE may, at its own discretion, replace it with a rebuilt product. In the case of a faulty component delivered to WESTIRE not fit for the purpose an Independent International Test Laboratory will be used to determine that the said component was defective before approaching the said component supplier. A copy of the received independent test report will be forwarded to both the customer of WESTIRE's Product and to the said component supplier.

This guarantee covers only the repair or the replacement of the WESTIRE defective Products listed in its catalogues: WESTIRE declines all responsibility for any costs related to the maintenance and/or installation and/or removal of WESTIRE's Products only the replacement on a one for one basis of the supplied WESTIRE Product.

The End-User's sole remedy under this guarantee is set forth in this document. For any claim concerning performance or non-performance of WESTIRE's Product under this guarantee, the End-User may recover actual damages up to the limit set forth in the following paragraph.

WESTIRE's liability for actual damages from any cause whatsoever will be limited to the amount of money the End-User paid for the Product that is returned to WESTIRE as a defective Product.

This limitation of liability will not apply to claims by you for bodily injury or damage to real property or tangible personal property or for replacement costs. IN NO EVENT WILL WESTIRE BE LIABLE FOR ANY LOST PROFITS, LOST SAVINGS, INCIDENTAL DAMAGE, OR OTHER ECONOMIC OR CONSEQUENTIAL DAMAGES. This is true even if the End-User advises WESTIRE of the possibility of such damages. WESTIRE is not liable for any claim by the End-User based on a third-party claim. This limitation of remedies also applies to claims against any Suppliers, Agents, Distributors and Remarketers of WESTIRE's Products. WESTIRE and its Suppliers' Agents, Distributors and Remarketers' limitations of remedies are not cumulative. Such Suppliers, Agents, Distributors and Remarketers are intended beneficiaries of this limitation.

WESTIRE WILL IN NO WAY BE HELD RESPONSIBLE, UNDER ANY CIRCUMSTANCES AT ALL, FOR INDIRECT, CONSEQUENTIAL OR ACCESSORY DAMAGES, OR FOR THE LOSS OF LIGHTING.

NOTE: WESTIRE is committed not to terminate support of their Products, or to consider the Products obsolete, if the necessary components included in the Product are available on the market, and a reasonable demand exists from its clients for these Products.

Signed:


Sean Noone
Title: Managing Director.

Date 13 | February | 2019.