

Fitting name:

MSL_Zoomable Planter Uplight_11mm

Citizen

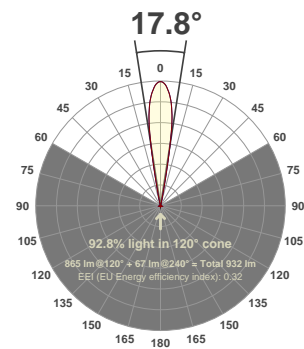
CLU721_90CRI_3000K_2012lm_18°

Date:

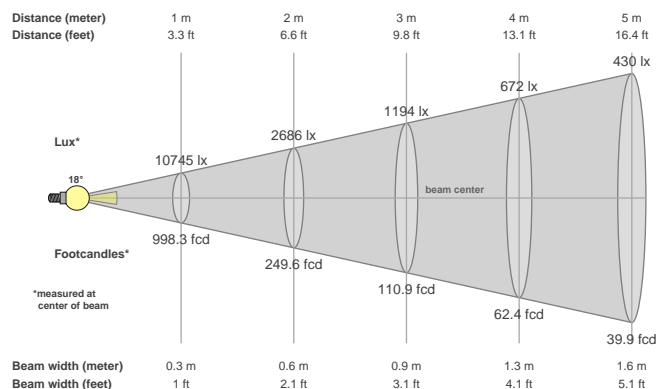
22/10/2018

Delivered Output: 865 Lumen

LOR: 43% *



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
17.8°	22.9°	27.3°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
10745 cd	92.8%	91.2%

Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
10745lx	2686lx	1194lx	672lx	430lx	298lx	219lx	168lx	133lx	107lx	89lx	75lx	64lx	55lx	48lx	42lx	37lx	33lx	30lx	27lx
998.3fcd	249.6fcd	110.9fcd	62.4fcd	39.9fcd	27.7fcd	20.4fcd	15.6fcd	12.3fcd	10fcd	8.3fcd	6.9fcd	5.9fcd	5.1fcd	4.4fcd	3.9fcd	3.5fcd	3.1fcd	2.8fcd	2.5fcd

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Glare Evaluation According to UGR

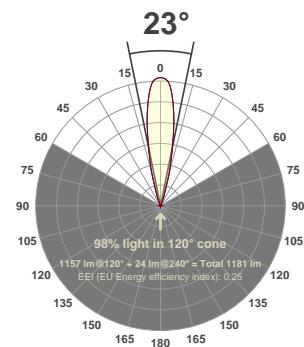
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	11.5	12.1	11.7	12.3	12.5	11.5	12.1	11.7	12.3	12.5
	3H	11.4	12.0	11.6	12.2	12.4	11.4	12.0	11.6	12.2	12.4
	4H	11.3	11.8	11.6	12.1	12.3	11.3	11.8	11.6	12.1	12.3
	6H	11.2	11.7	11.5	12.0	12.3	11.2	11.7	11.5	12.0	12.3
	8H	11.2	11.7	11.5	12.0	12.2	11.2	11.7	11.5	12.0	12.2
	12H	11.1	11.6	11.5	11.9	12.2	11.1	11.6	11.5	11.9	12.2
4H	2H	11.5	12.1	11.8	12.3	12.6	11.5	12.1	11.8	12.3	12.6
	3H	11.4	11.9	11.7	12.2	12.5	11.4	11.9	11.7	12.2	12.5
	4H	11.3	11.7	11.7	12.0	12.4	11.3	11.7	11.7	12.0	12.4
	6H	11.2	11.6	11.6	11.9	12.3	11.2	11.6	11.6	11.9	12.3
	8H	11.2	11.5	11.6	11.9	12.3	11.2	11.5	11.6	11.9	12.3
	12H	11.2	11.4	11.6	11.8	12.2	11.2	11.4	11.6	11.8	12.2
8H	4H	11.2	11.5	11.6	11.9	12.3	11.2	11.5	11.6	11.9	12.3
	6H	11.1	11.3	11.6	11.8	12.2	11.1	11.3	11.6	11.8	12.2
	8H	11.1	11.2	11.5	11.7	12.2	11.1	11.2	11.5	11.7	12.2
	12H	11.0	11.2	11.5	11.6	12.1	11.0	11.2	11.5	11.6	12.1
12H	4H	11.2	11.4	11.6	11.8	12.2	11.2	11.4	11.6	11.8	12.2
	6H	11.1	11.2	11.5	11.7	12.2	11.1	11.2	11.5	11.7	12.2
	8H	11.0	11.2	11.5	11.6	12.1	11.0	11.2	11.5	11.6	12.1
Variation of the observer position for the luminaire distance S											
S = 1.0H		+1.1 / -1.0					+1.1 / -1.0				
S = 1.5H		+2.3 / -94.7					+2.3 / -94.7				
S = 2.0H		+3.2 / -92.7					+3.2 / -92.7				
Standard table		BK00					BK00				
Correction summand		-7.1					-7.1				
Corrected glare indices referring to 865lm total luminous flux											

Fitting name:
MSL_Zoomable Planter Uplight_11mm
 Citizen
CLU721_90CRI_3000K_2012lm_23°

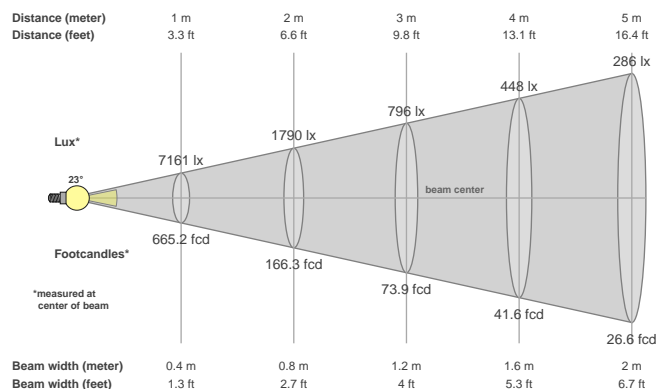
Date:
22/10/2018

Delivered Output: **1157 Lumen**

LOR: **58% ***



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
23°	37.4°	45.7°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
7161 cd	98.0%	97.7%

Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
7161lx	1790lx	796lx	448lx	286lx	199lx	146lx	112lx	88lx	72lx	59lx	50lx	42lx	37lx	32lx	28lx	25lx	22lx	20lx	18lx
665.2fcd	166.3fcd	73.9fcd	41.6fcd	26.6fcd	18.5fcd	13.6fcd	10.4fcd	8.2fcd	6.7fcd	5.5fcd	4.6fcd	3.9fcd	3.4fcd	3fcd	2.6fcd	2.3fcd	2.1fcd	1.8fcd	1.7fcd

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Glare Evaluation According to UGR

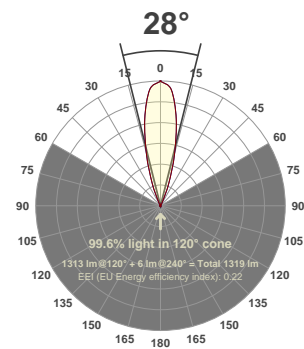
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	2.6	3.3	2.9	3.5	3.7	2.6	3.3	2.9	3.5	3.7
	3H	2.5	3.1	2.8	3.3	3.6	2.5	3.1	2.8	3.3	3.6
	4H	2.4	3.0	2.7	3.2	3.5	2.4	3.0	2.7	3.2	3.5
	6H	2.4	2.9	2.7	3.1	3.4	2.4	2.9	2.7	3.1	3.4
	8H	2.3	2.8	2.7	3.1	3.4	2.3	2.8	2.7	3.1	3.4
	12H	2.3	2.7	2.6	3.0	3.4	2.3	2.7	2.6	3.0	3.4
4H	2H	2.8	3.3	3.1	3.6	3.8	2.8	3.3	3.1	3.6	3.8
	3H	2.6	3.1	3.0	3.4	3.7	2.6	3.1	3.0	3.4	3.7
	4H	2.5	2.9	2.9	3.3	3.6	2.5	2.9	2.9	3.3	3.6
	6H	2.5	2.8	2.9	3.2	3.5	2.5	2.8	2.9	3.2	3.5
	8H	2.4	2.7	2.8	3.1	3.5	2.4	2.7	2.8	3.1	3.5
	12H	2.4	2.6	2.8	3.0	3.4	2.4	2.6	2.8	3.0	3.4
8H	4H	2.4	2.7	2.8	3.1	3.5	2.4	2.7	2.8	3.1	3.5
	6H	2.3	2.6	2.8	3.0	3.4	2.3	2.6	2.8	3.0	3.4
	8H	2.3	2.5	2.8	2.9	3.4	2.3	2.5	2.8	2.9	3.4
	12H	2.2	2.4	2.7	2.8	3.3	2.2	2.4	2.7	2.8	3.3
12H	4H	2.4	2.6	2.8	3.0	3.4	2.4	2.6	2.8	3.0	3.4
	6H	2.3	2.5	2.8	2.9	3.4	2.3	2.5	2.8	2.9	3.4
	8H	2.2	2.4	2.7	2.8	3.3	2.2	2.4	2.7	2.8	3.3
Variation of the observer position for the luminaire distance S											
S = 1.0H		+2.5 / -2.1					+2.5 / -2.1				
S = 1.5H		+3.9 / -5.6					+3.9 / -5.6				
S = 2.0H		+5.8 / -83.0					+5.8 / -83.0				
Standard table		BK00					BK00				
Correction summand		-15.9					-15.9				
Corrected glare indices referring to 1157lm total luminous flux											

Fitting name:
MSL_Zoomable Planter Uplight_11mm
 Citizen
CLU721_90CRI_3000K_2012lm_28°

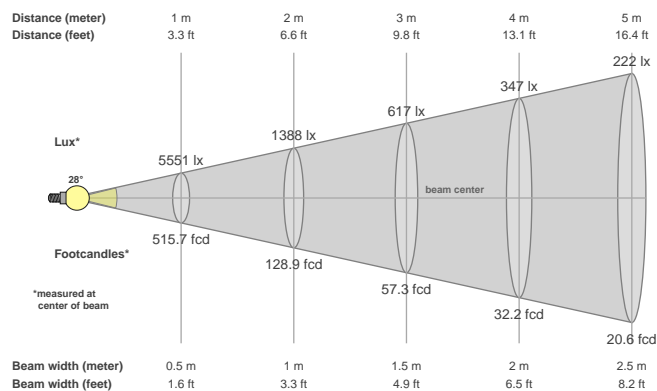
Date:
22/10/2018

Delivered Output: **1313 Lumen**

LOR: **65% ***



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
28°	46.8°	55.7°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
5551 cd	99.6%	99.4%

Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
5551lx	1388lx	617lx	347lx	222lx	154lx	113lx	87lx	69lx	56lx	46lx	39lx	33lx	28lx	25lx	22lx	19lx	17lx	15lx	14lx
515.7fcd	128.9fcd	57.3fcd	32.2fcd	20.6fcd	14.3fcd	10.5fcd	8.1fcd	6.4fcd	5.2fcd	4.3fcd	3.6fcd	3.1fcd	2.6fcd	2.3fcd	2fcd	1.8fcd	1.6fcd	1.4fcd	1.3fcd

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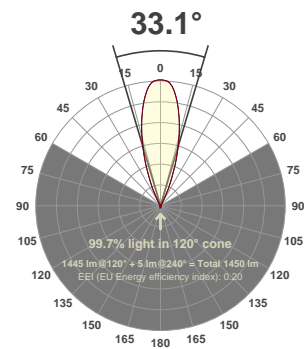
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	-1.0	-0.3	-0.7	-0.1	0.1	-1.0	-0.3	-0.7	-0.1	0.1
	3H	-1.1	-0.5	-0.8	-0.3	-0.0	-1.1	-0.5	-0.8	-0.3	-0.0
	4H	-1.2	-0.6	-0.9	-0.4	-0.1	-1.2	-0.6	-0.9	-0.4	-0.1
	6H	-1.2	-0.7	-0.9	-0.5	-0.2	-1.2	-0.7	-0.9	-0.5	-0.2
	8H	-1.3	-0.8	-0.9	-0.5	-0.2	-1.3	-0.8	-0.9	-0.5	-0.2
	12H	-1.3	-0.9	-1.0	-0.6	-0.2	-1.3	-0.9	-1.0	-0.6	-0.2
4H	2H	-1.0	-0.5	-0.7	-0.3	-0.0	-1.0	-0.5	-0.7	-0.3	-0.0
	3H	-1.2	-0.7	-0.9	-0.4	-0.1	-1.2	-0.7	-0.9	-0.4	-0.1
	4H	-1.3	-0.9	-0.9	-0.5	-0.2	-1.3	-0.9	-0.9	-0.5	-0.2
	6H	-1.3	-1.0	-0.9	-0.7	-0.3	-1.3	-1.0	-0.9	-0.7	-0.3
	8H	-1.4	-1.1	-1.0	-0.7	-0.3	-1.4	-1.1	-1.0	-0.7	-0.3
	12H	-1.4	-1.2	-1.0	-0.8	-0.4	-1.4	-1.2	-1.0	-0.8	-0.4
8H	4H	-1.4	-1.1	-1.0	-0.7	-0.3	-1.4	-1.1	-1.0	-0.7	-0.3
	6H	-1.5	-1.3	-1.0	-0.8	-0.4	-1.5	-1.3	-1.0	-0.8	-0.4
	8H	-1.5	-1.3	-1.1	-0.9	-0.4	-1.5	-1.3	-1.1	-0.9	-0.4
	12H	-1.6	-1.4	-1.1	-1.0	-0.5	-1.6	-1.4	-1.1	-1.0	-0.5
12H	4H	-1.4	-1.2	-1.0	-0.8	-0.4	-1.4	-1.2	-1.0	-0.8	-0.4
	6H	-1.5	-1.3	-1.1	-0.9	-0.4	-1.5	-1.3	-1.1	-0.9	-0.4
	8H	-1.6	-1.4	-1.1	-1.0	-0.5	-1.6	-1.4	-1.1	-1.0	-0.5
Variation of the observer position for the luminaire distance S											
S = 1.0H		+5.0 / -5.1					+5.0 / -5.1				
S = 1.5H		+7.6 / -9.7					+7.6 / -9.7				
S = 2.0H		+9.5 / -78.7					+9.5 / -78.7				
Standard table		BK00					BK00				
Correction summand		-19.6					-19.6				
Corrected glare indices referring to 1313lm total luminous flux											

Fitting name:
MSL_Zoomable Planter Uplight_11mm
 Citizen
CLU721_90CRI_3000K_2012lm_33°

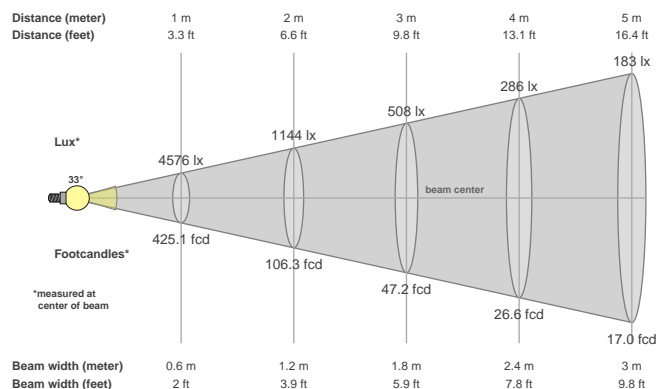
Date:
22/10/2018

Delivered Output: **1445 Lumen**

LOR: **72% ***



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
33.1°	53.1°	62.5°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
4576 cd	99.7%	99.5%

Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
4576lx	1144lx	508lx	286lx	183lx	127lx	93lx	71lx	56lx	46lx	38lx	32lx	27lx	23lx	20lx	18lx	16lx	14lx	13lx	11lx
425.1fcd	106.3fcd	47.2fcd	26.6fcd	17fcd	11.8fcd	8.7fcd	6.6fcd	5.2fcd	4.3fcd	3.5fcd	3fcd	2.5fcd	2.2fcd	1.9fcd	1.7fcd	1.5fcd	1.3fcd	1.2fcd	1.1fcd

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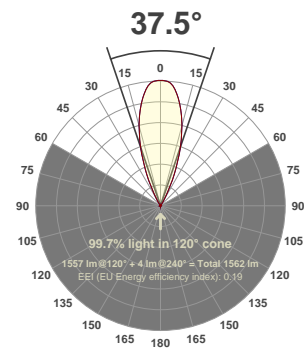
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p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	9.8	10.4	10.0	10.6	10.8	9.8	10.4	10.0	10.6	10.8
	3H	9.6	10.2	9.9	10.4	10.7	9.6	10.2	9.9	10.4	10.7
	4H	9.6	10.1	9.9	10.3	10.6	9.6	10.1	9.9	10.3	10.6
	6H	9.5	10.0	9.8	10.3	10.5	9.5	10.0	9.8	10.3	10.5
	8H	9.4	9.9	9.8	10.2	10.5	9.4	9.9	9.8	10.2	10.5
	12H	9.4	9.9	9.8	10.2	10.5	9.4	9.9	9.8	10.2	10.5
4H	2H	9.6	10.1	9.9	10.4	10.6	9.6	10.1	9.9	10.4	10.6
	3H	9.4	9.9	9.8	10.2	10.5	9.4	9.9	9.8	10.2	10.5
	4H	9.3	9.7	9.7	10.1	10.4	9.3	9.7	9.7	10.1	10.4
	6H	9.3	9.6	9.7	10.0	10.3	9.3	9.6	9.7	10.0	10.3
	8H	9.2	9.5	9.6	9.9	10.3	9.2	9.5	9.6	9.9	10.3
	12H	9.2	9.4	9.6	9.8	10.2	9.2	9.4	9.6	9.8	10.2
8H	4H	9.2	9.5	9.6	9.9	10.3	9.2	9.5	9.6	9.9	10.3
	6H	9.1	9.4	9.6	9.8	10.2	9.1	9.4	9.6	9.8	10.2
	8H	9.1	9.3	9.6	9.7	10.2	9.1	9.3	9.6	9.7	10.2
	12H	9.0	9.2	9.5	9.6	10.1	9.0	9.2	9.5	9.6	10.1
12H	4H	9.2	9.4	9.6	9.8	10.2	9.2	9.4	9.6	9.8	10.2
	6H	9.1	9.3	9.6	9.7	10.2	9.1	9.3	9.6	9.7	10.2
	8H	9.0	9.2	9.5	9.6	10.1	9.0	9.2	9.5	9.6	10.1
Variation of the observer position for the luminaire distance S											
S = 1.0H		+6.8 / -13.2					+6.8 / -13.2				
S = 1.5H		+9.6 / -18.0					+9.6 / -18.0				
S = 2.0H		+11.6 / -89.0					+11.6 / -89.0				
Standard table		BK00					BK00				
Correction summand		-8.9					-8.9				
Corrected glare indices referring to 1445lm total luminous flux											

Fitting name:
MSL_Zoomable Planter Uplight_11mm
 Citizen
CLU721_90CRI_3000K_2012lm_38°

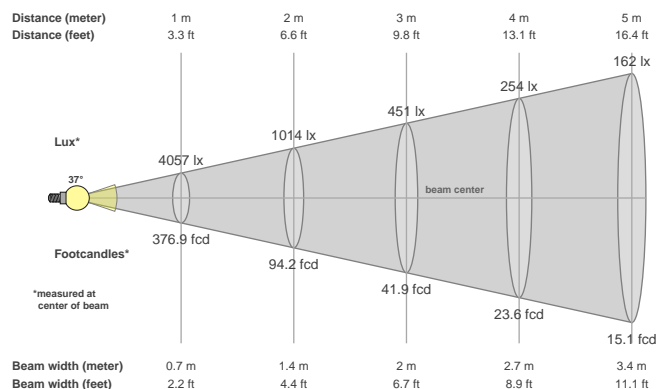
Date:
22/10/2018

Delivered Output: **1557 Lumen**

LOR: **78% ***



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
37.5°	56.9°	65.7°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
4057 cd	99.7%	99.6%

Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
4057lx	1014lx	451lx	254lx	162lx	113lx	83lx	63lx	50lx	41lx	34lx	28lx	24lx	21lx	18lx	16lx	14lx	13lx	11lx	10lx
376.9fcd	94.2fcd	41.9fcd	23.6fcd	15.1fcd	10.5fcd	7.7fcd	5.9fcd	4.7fcd	3.8fcd	3.1fcd	2.6fcd	2.2fcd	1.9fcd	1.7fcd	1.5fcd	1.3fcd	1.2fcd	1fcd	0.9fcd

Files are generated using the highest CRI and highest output 3000K light source available in the luminaire, other lower outputs and colour temperatures are of course available. Other outputs and colour temperatures are available on request, these may take some time as they must be tested.

* These files are absolute measurements, not relative, as such the LOR is not generated when testing a fitting. To get an idea of LOR please use the measured delivered output in the files and documentation and calculate a ratio using the light source output mentioned in the file and product names. Note that the source output files will be nominal figures provided to us by the light source manufacturers and assuming a max 35°C ambient temperature so this LOR is as stated an indication only. Eventually we will have manually calculated these numbers and entered them into all the files.

The power figures in the files have been generated based on the voltage and current to the light source only, not allowing for any driver losses. This is because our fittings are used with a number of different drivers (sometimes integral) and loaded differently, these variations effect the driver power factor and efficiency which in turn skews the power consumption figure.

Files are not always available for the specific combination of beam, accessory, driver selected, so these can be specifically requested. As with requests for specific colour temperatures this can take some time to generate as these combinations must be made then scheduled in to testing. MSL will advise on how long requests for specific data are likely to take.

MSL advise that lighting designers apply a +/- 5% tolerance allowance on the files we provide as subtle variations in system components (eg slight variations in output of LED light sources through a bin) and ambient temperature variations can effect output and distribution slightly.

Glare Evaluation According to UGR

p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	13.3	13.9	13.5	14.1	14.3	13.3	13.9	13.5	14.1	14.3
	3H	13.2	13.7	13.4	14.0	14.2	13.2	13.7	13.4	14.0	14.2
	4H	13.1	13.6	13.4	13.9	14.1	13.1	13.6	13.4	13.9	14.1
	6H	13.0	13.5	13.3	13.8	14.1	13.0	13.5	13.3	13.8	14.1
	8H	13.0	13.5	13.3	13.7	14.0	13.0	13.5	13.3	13.7	14.0
	12H	12.9	13.4	13.3	13.7	14.0	12.9	13.4	13.3	13.7	14.0
4H	2H	13.1	13.6	13.4	13.9	14.1	13.1	13.6	13.4	13.9	14.1
	3H	12.9	13.4	13.3	13.7	14.0	12.9	13.4	13.3	13.7	14.0
	4H	12.9	13.3	13.2	13.6	13.9	12.9	13.3	13.2	13.6	13.9
	6H	12.8	13.1	13.2	13.5	13.8	12.8	13.1	13.2	13.5	13.8
	8H	12.8	13.0	13.2	13.4	13.8	12.8	13.0	13.2	13.4	13.8
	12H	12.7	13.0	13.1	13.3	13.8	12.7	13.0	13.1	13.3	13.8
8H	4H	12.8	13.0	13.2	13.4	13.8	12.8	13.0	13.2	13.4	13.8
	6H	12.7	12.9	13.1	13.3	13.7	12.7	12.9	13.1	13.3	13.7
	8H	12.6	12.8	13.1	13.2	13.7	12.6	12.8	13.1	13.2	13.7
	12H	12.6	12.7	13.0	13.2	13.7	12.6	12.7	13.0	13.2	13.7
12H	4H	12.7	13.0	13.1	13.3	13.8	12.7	13.0	13.1	13.3	13.8
	6H	12.6	12.8	13.1	13.2	13.7	12.6	12.8	13.1	13.2	13.7
	8H	12.6	12.7	13.0	13.2	13.7	12.6	12.7	13.0	13.2	13.7
Variation of the observer position for the luminaire distance S											
S = 1.0H		+6.9 / -18.4					+6.9 / -18.4				
S = 1.5H		+9.8 / -24.6					+9.8 / -24.6				
S = 2.0H		+11.7 / -92.3					+11.7 / -92.3				
Standard table		BK00					BK00				
Correction summand		-5.4					-5.4				
Corrected glare indices referring to 1557lm total luminous flux											