

PHOTOMETRIC TEST REPORT

NOMAD WALL 115

astro

LIGHT EFFICIENCY:



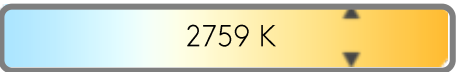
OUTPUT: 115 lm

LIGHT QUALITY:



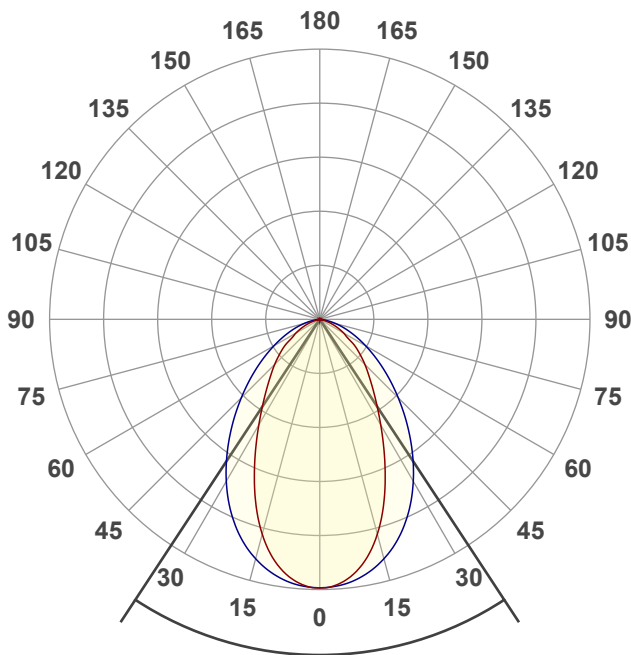
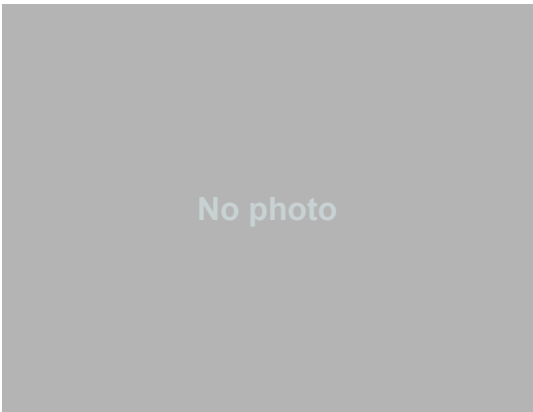
PEAK: 77.0 cd

COLOR TEMPERATURE:



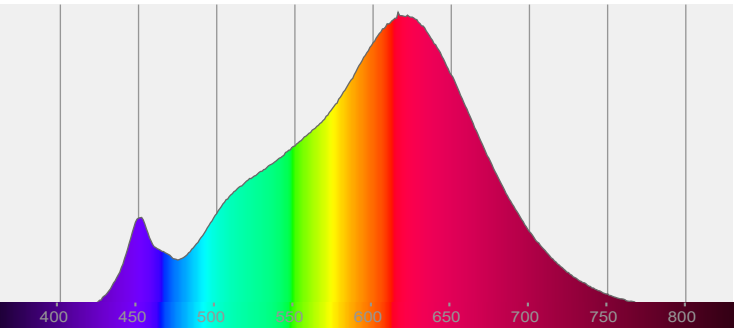
POWER: 8.2 W

PF: 0.8

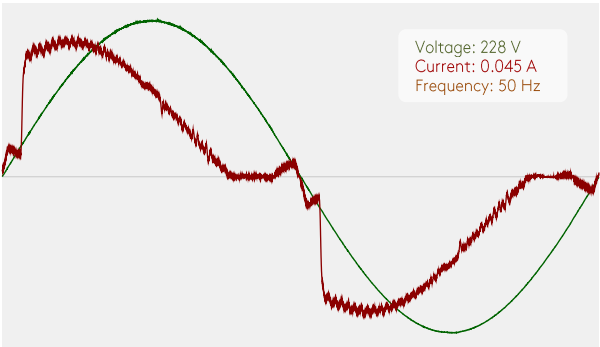


CIE 1931
x: 0.457
y: 0.413

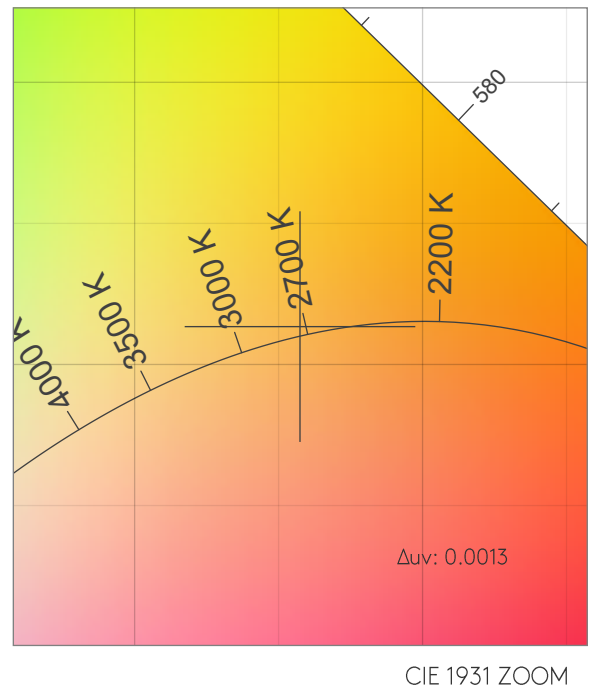
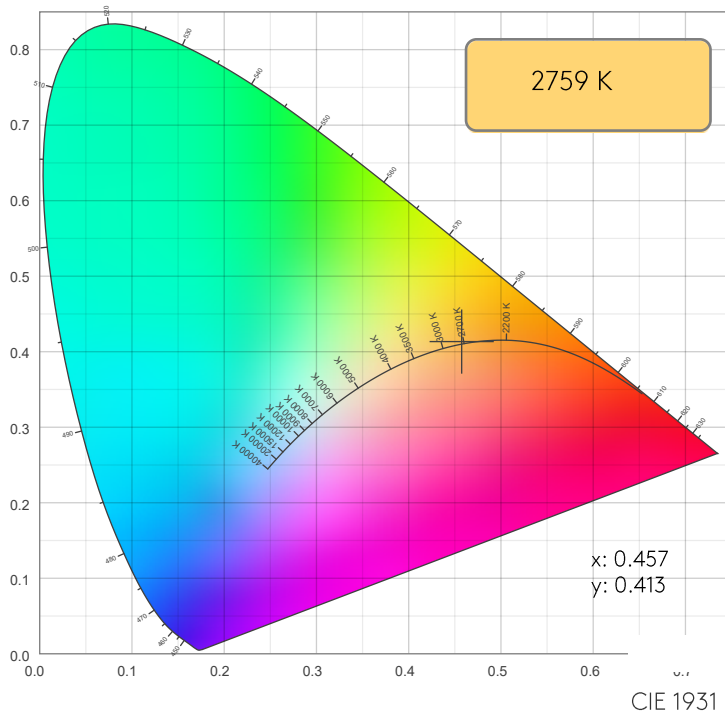
SPECTRA



POWER

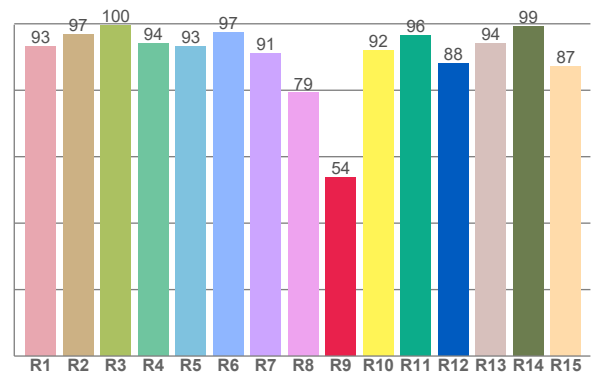
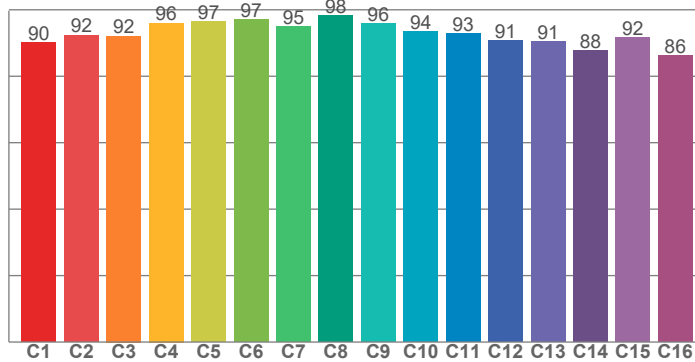


COLOR DETAILS



TM30: 93.0

CRI: 93.1 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
93.1	96.7	99.6	94.2	93.3	97.4	91.1	79.2	63.7	92.0	96.4	88.0	94.1	99.1	87.0

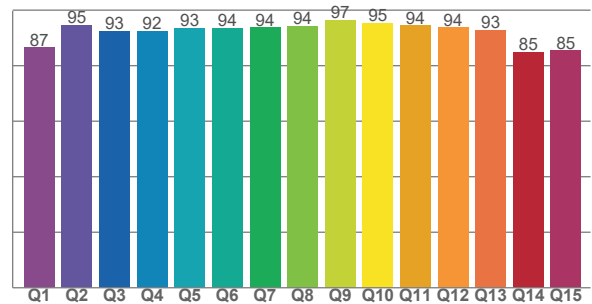
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90.2	92.4	92.1	96.0	96.5	97.0	94.9	98.2	95.9	93.5	92.8	90.8	90.5	87.7	91.7	86.3

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
86.6	94.6	92.5	92.4	93.5	93.6	93.7	94.4	96.5	95.3	94.4	93.8	92.7	84.9	85.5

CQS: 91.3



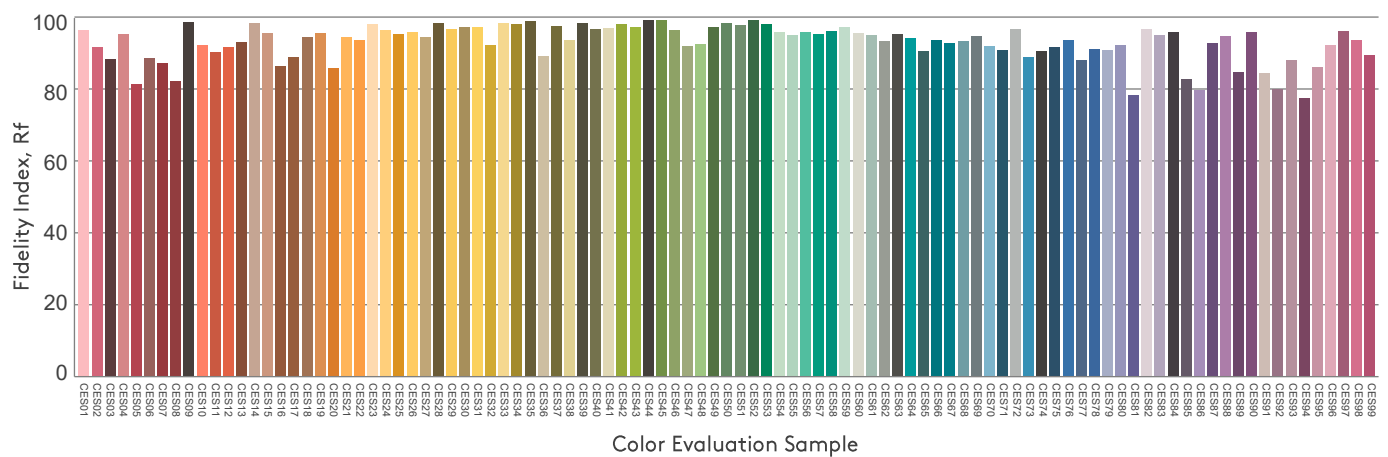
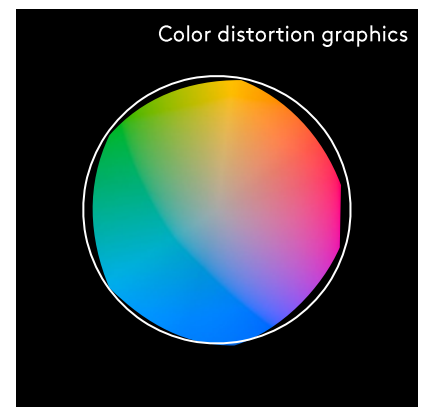
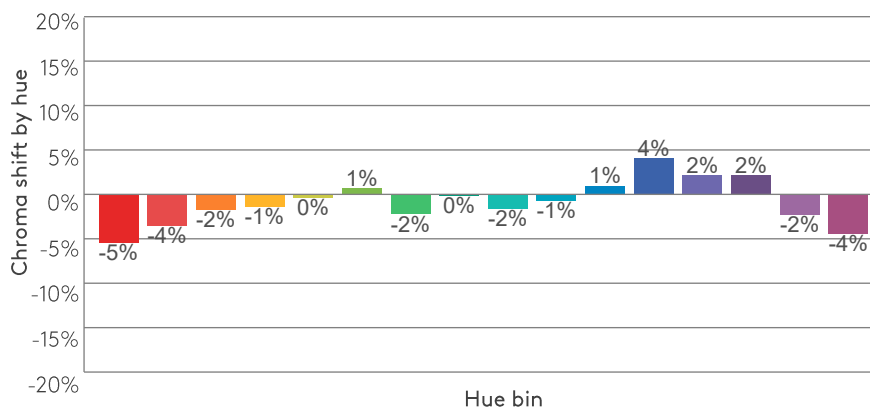
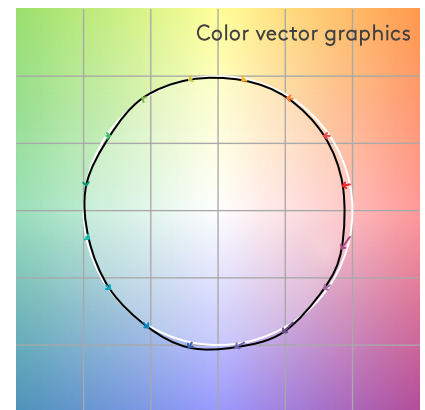
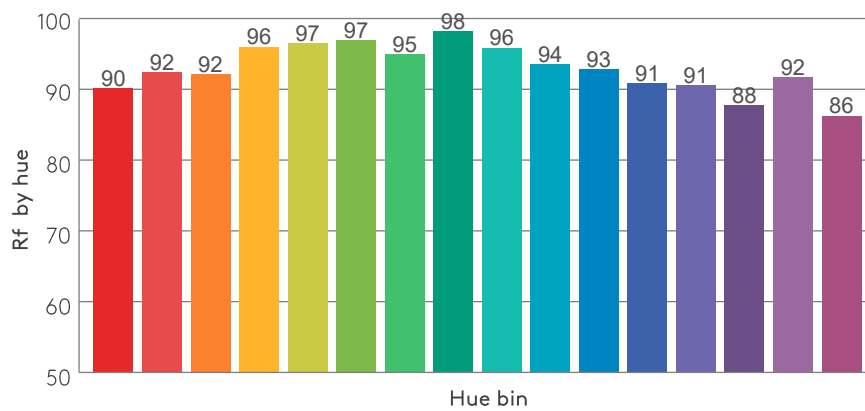
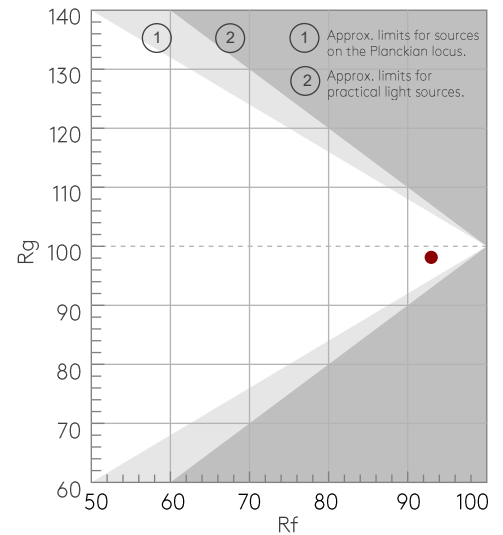
COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2759 K	93.1	53.7	93.0	98.1	91.3	0.457	0.413	0.260	0.352	0.0013

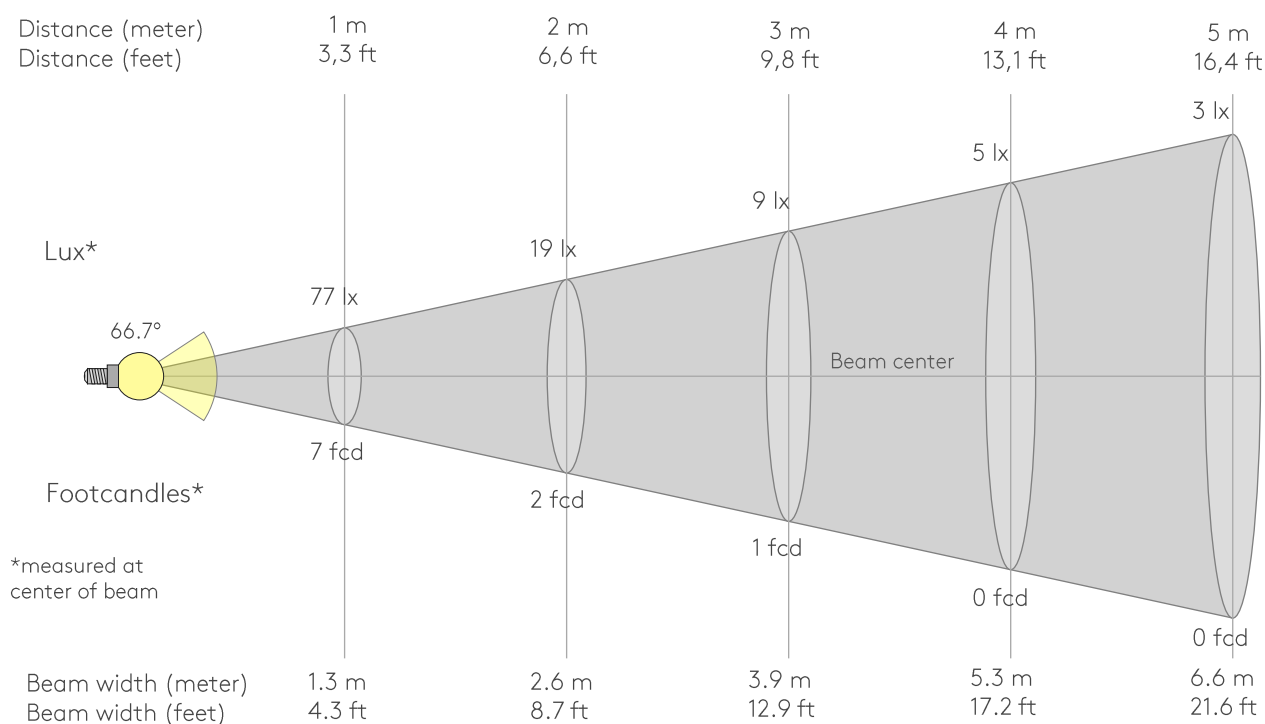
Rf 93.0
Fidelity index Rf

Rg 98.1
Gammut index Rg

Hue Bin	Rf	Graphic shifts (%)	
		Chroma	Hue
1	90	-5%	0%
2	92	-4%	2%
3	92	-2%	4%
4	96	-1%	1%
5	97	0%	2%
6	97	1%	0%
7	95	-2%	-2%
8	98	0%	1%
9	96	-2%	2%
10	94	-1%	4%
11	93	1%	5%
12	91	4%	-2%
13	91	2%	-7%
14	88	2%	-10%
15	92	-2%	-4%
16	86	-4%	-10%



BEAM DETAILS



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
77lx	19lx	9lx	5lx	3lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx	0lx
7.2fcd	1.8fcd	0.8fcd	0.4fcd	0.3fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd	0fcd

Intensities in 0° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
77.0	75.5	71.1	63.8	54.2	44.0	35.0	27.8	22.4	18.3	14.6	10.7	8.0	5.5	3.3	1.3	0.1	0.0	0.0	0.0
100%	98%	92%	83%	70%	57%	45%	36%	29%	24%	19%	14%	10%	7%	4%	2%	0%	0%	0%	0%

Intensities in 90° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
77.0	76.3	74.4	71.0	66.4	60.5	53.6	46.2	38.8	31.8	25.5	20.0	15.2	11.1	7.7	4.8	2.2	0.4	0.0	0.0
100%	99%	97%	92%	86%	79%	70%	60%	50%	41%	33%	26%	20%	14%	10%	6%	3%	0%	0%	0%

Intensities in 180° c-plane

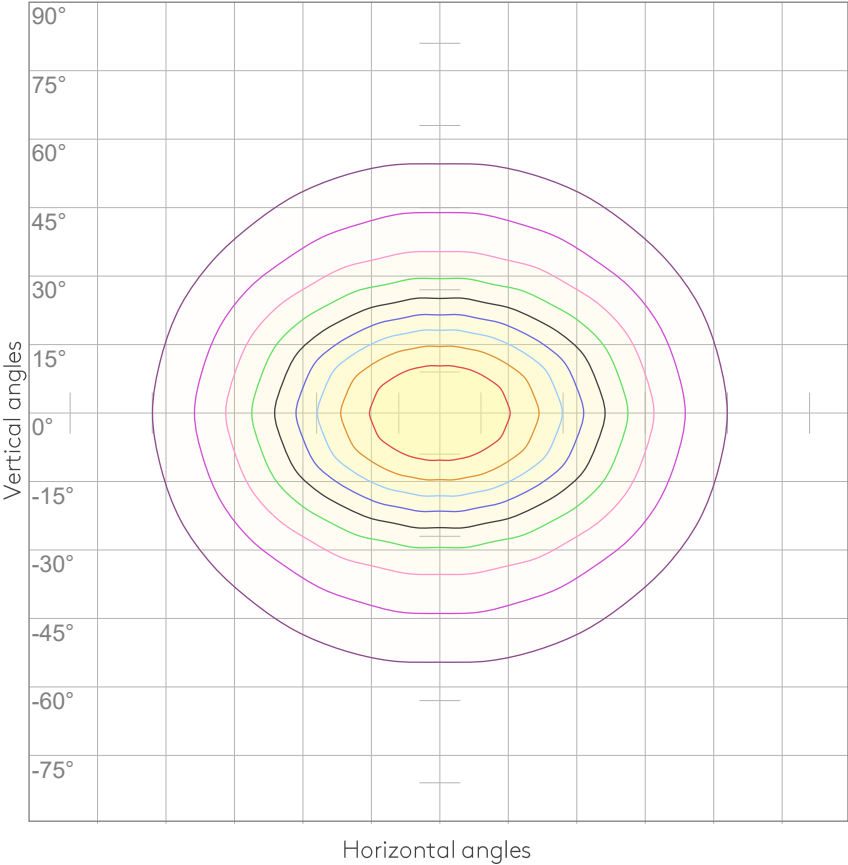
0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
77.0	75.5	71.1	63.8	54.2	44.0	35.0	27.8	22.4	18.3	14.6	10.7	8.0	5.5	3.3	1.3	0.1	0.0	0.0	0.0
100%	98%	92%	83%	70%	57%	45%	36%	29%	24%	19%	14%	10%	7%	4%	2%	0%	0%	0%	0%

Intensities in 270° c-plane

0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	95°
77.0	76.3	74.4	71.0	66.4	60.5	53.6	46.2	38.8	31.8	25.5	20.0	15.2	11.1	7.7	4.8	2.2	0.4	0.0	0.0
100%	99%	97%	92%	86%	79%	70%	60%	50%	41%	33%	26%	20%	14%	10%	6%	3%	0%	0%	0%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
66.7°	130.4°	153.9°	90.1%	71.2%

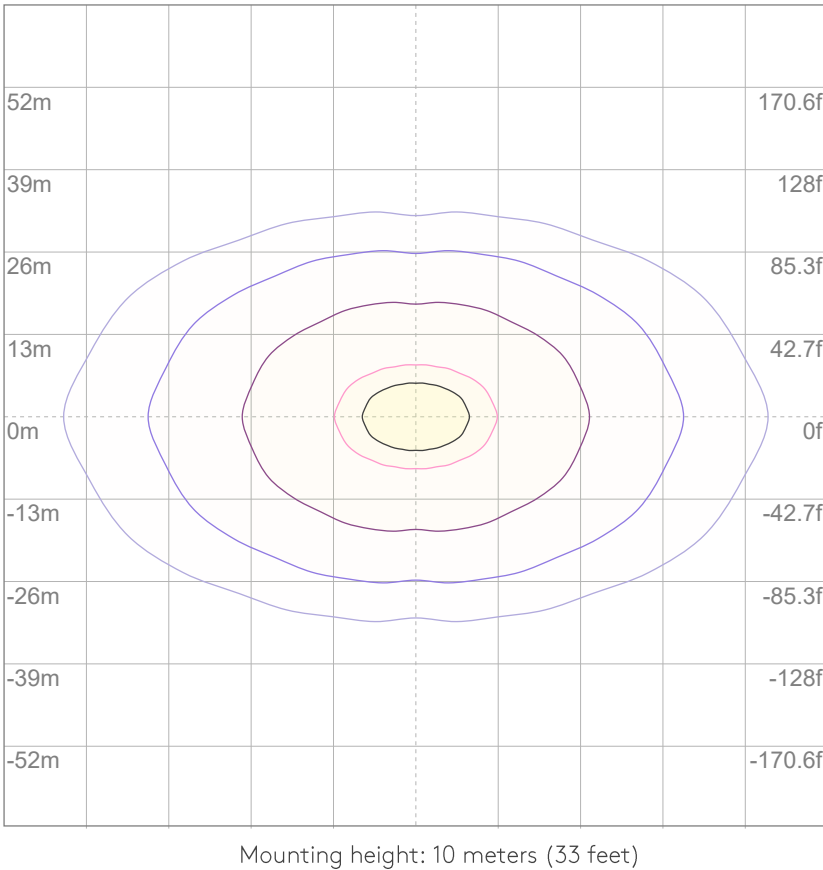
ISO CANDELA DIAGRAM



10%	8 cd
20%	15 cd
30%	23 cd
40%	31 cd
50%	38 cd
60%	46 cd
70%	54 cd
80%	62 cd
90%	69 cd

Conditions:
Number of c-planes: 16
Candela at center: 77 cd

ISO LUX DIAGRAM



3%	23.1m lx
5%	38.5m lx
10%	77.0m lx
30%	0.231 lx
50%	0.385 lx

Conditions:
Number of c-planes: 16
Lux at center: 0.770 lx

Lux distribution on a surface
when lamp is mounted at 10
meters from the surface.

UGR

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	16.4	17.4	16.6	17.7	17.9	19.1	20.1	19.3	20.4	20.6
	3H	16.9	17.9	17.3	18.2	18.4	20.0	21.0	20.4	21.3	21.5
	4H	17.0	17.9	17.4	18.2	18.4	20.3	21.3	20.7	21.6	21.8
	6H	17.0	17.8	17.3	18.1	18.5	20.6	21.4	20.9	21.7	22.1
	8H	16.9	17.7	17.2	18.1	18.5	20.6	21.4	20.9	21.7	22.1
	12H	16.9	17.7	17.2	18.0	18.4	20.5	21.3	20.9	21.7	22.1
4H	2H	16.9	17.9	17.3	18.2	18.4	19.2	20.2	19.6	20.4	20.7
	3H	17.7	18.5	18.0	18.8	19.3	20.4	21.2	20.7	21.5	22.0
	4H	17.7	18.5	18.2	18.9	19.4	20.7	21.5	21.2	21.9	22.4
	6H	17.7	18.4	18.2	18.7	19.1	21.0	21.7	21.5	22.0	22.4
	8H	17.6	18.3	18.1	18.6	19.0	21.0	21.6	21.5	22.0	22.4
	12H	17.6	18.1	18.1	18.5	19.0	21.0	21.5	21.5	21.9	22.4
8H	4H	17.9	18.5	18.4	18.9	19.3	20.7	21.4	21.2	21.7	22.1
	6H	17.8	18.3	18.4	18.8	19.3	21.0	21.5	21.5	21.9	22.5
	8H	17.8	18.2	18.4	18.8	19.4	21.1	21.5	21.6	22.0	22.6
	12H	17.8	18.1	18.4	18.6	19.2	21.0	21.4	21.6	21.9	22.5
12H	4H	17.8	18.4	18.3	18.8	19.3	20.7	21.2	21.2	21.6	22.1
	6H	17.9	18.3	18.4	18.8	19.4	21.0	21.4	21.5	21.9	22.6
	8H	17.8	18.1	18.4	18.7	19.3	21.0	21.4	21.6	21.9	22.5
Variation of the observer position for the luminaire distance S											
S = 1.0H		0.4 / -0.6					0.2 / -0.3				
S = 1.5H		0.6 / -1.5					0.8 / -0.9				
S = 2.0H		1.3 / -2.6					1.6 / -1.7				
Standard table		n/a					n/a				
Correction summand		n/a					n/a				
Corrected glare indices referring to 115 lm total luminous flux											

Lumen per Zone

Zone (°)	Lumen	% Total
0-10°	7 lm	6.2%
10-20°	19 lm	16.3%
20-30°	24 lm	20.6%
30-40°	22 lm	19.5%
40-50°	18 lm	15.9%
50-60°	13 lm	11.5%
60-70°	8 lm	6.9%
70-80°	3 lm	2.7%
80-90°	0 lm	0.2%
90-100°	0 lm	0.0%
100-110°	0 lm	0.0%
110-120°	0 lm	0.0%
120-130°	0 lm	0.0%
130-140°	0 lm	0.0%
140-150°	0 lm	0.0%
150-160°	0 lm	0.0%
160-170°	0 lm	0.0%
170-180°	0 lm	0.0%
Total	115 lm	100.0%

Intensity peaks

Max intensity	77 cd
Intensity, 90°	0 cd
Intensity, 0°	77 cd

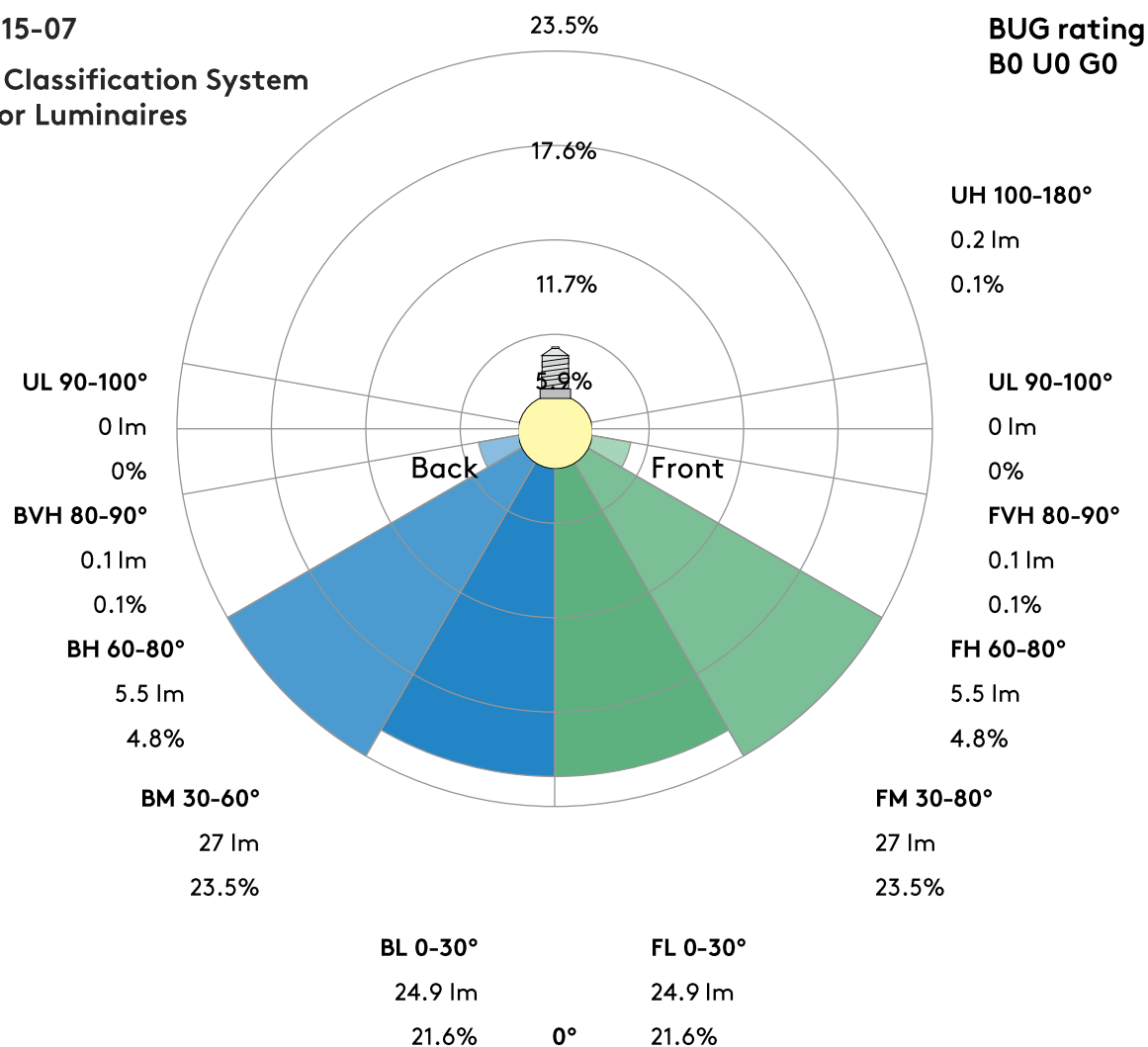
Zonal Lumen summary

Zone (°)	Lumen	% Total
0-30°	50 lm	43.2%
0-40°	72 lm	62.7%
0-60°	104 lm	90.1%
60-90°	11 lm	9.8%
70-100°	3 lm	2.9%
90-120°	0 lm	0.0%
0-90°	115 lm	99.9%
90-180°	0 lm	0.1%
0-180°	115 lm	100.0%

BUG rating

Forward light	Lumen	% Total
Low(0-30°)	25 lm	21.6%
Medium(30-60°)	27 lm	23.5%
High(60-80°)	6 lm	4.8%
Very high(80-90°)	0 lm	0.1%
Back light	Lumen	% Total
Low(0-30°)	25 lm	21.6%
Medium(30-60°)	27 lm	23.5%
High(60-80°)	6 lm	4.8%
Very high(80-90°)	0 lm	0.1%
Uplight	Lumen	% Total
Low(90-100°)	0 lm	0.0%
High(100-180°)	0 lm	0.1%

IESNA TM-15-07

Luminaire Classification System
For Outdoor Luminaires

Flicker /TLA details

Flicker Meter Type Viso Systems LabFlicker
 Frequency of input power 50 Hz
 Flicker/TLA sample rate 20000 samples/s

Measurement time
 PstLM 180 sec
 All other indices 1,2 sec

Flicker indices according to Illuminating Engineering Society (IES)

Flicker frequency 200 Hz
 Percent Flicker 0.22 %
 Flicker index 0

TLA indices (re IEC TR 61547-1, IEC 61000-3-3 and IEC 61000-4-15)

PstLM value ($F < 80$ Hz) 0.01
 SVM value ($80 < F < 2000$ Hz) 0

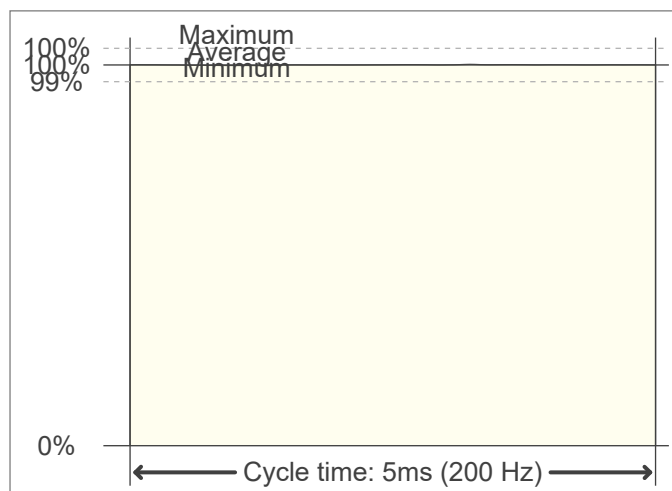
Flicker indices according to California Energy Commission (CEC) 2016b

JA8/10 40 Hz 0.01 %
 JA8/10 90 Hz 0.02 %
 JA8/10 200 Hz 0.06 %
 JA8/10 400 Hz 0.12 %
 JA8/10 1000 Hz 0.16 %

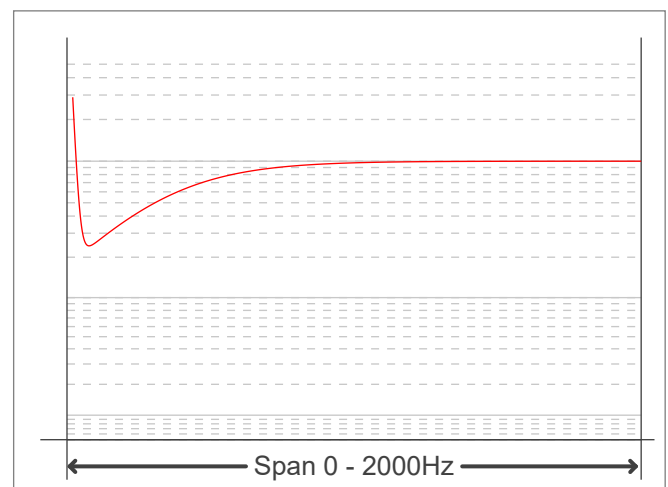
Flicker indices according to Lighting Research Center (2015)

Perception metric, Assist Mp 0.01

Flicker frame (frame of one flicker period in time domain)



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/modulation plot

