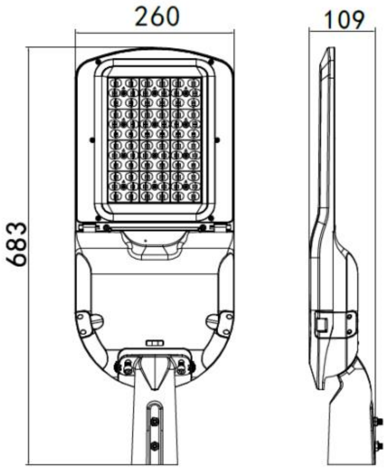
Product Overview

Product Name / Code	KINGSTON 150W Streetlight - LC6160-T3
Description	Spigot Dia 60mm, IP65, 4000K, T3 Optic
Manufacturer	Decrolux Lighting Pty Ltd



Laboratory and Equipment

System Name / Model	LabSpion / Freedom VIS (Custom Viso)
Manufacturer / Serial Number	Ibsen Photonics, Denmark / 2417457569
Sensor Name	LabSensor Model2
Sensor Serial Number / Calibration Date	3430823524 / 7/12/2022

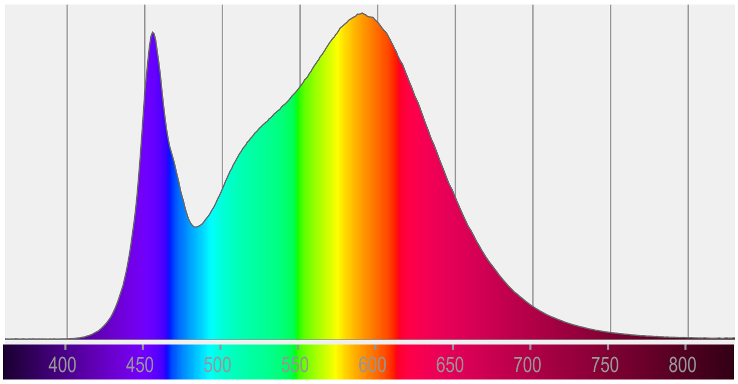
Measurement Details

Test Date and Time	11/04/2023 5:14:54 PM
Operator	Johnny Elmer
C-Planes Measured	72
Measurement Resolution	5°
Measurement Distance	442.5cm
Measurement Number	VFR-230411-0051-MS
Tracking Link	http://www.visosystems.com/tracking/?id=VT230412-000384

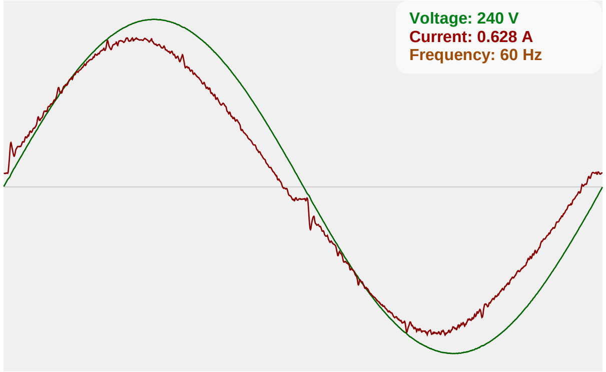
Performance

Total Lumen Output	22078 lm
Light Efficiency	149 Lumen/Watt
Peak (cd)	12225 cd
Nominal Power	148 W
Input Voltage	240 V
Frequency of Input Power	60 Hz
Power Factor	0.98
Warm-up (stabilisation) Time	Lamp stabilized in 1 hour 9 min
Warm-up Variation	-3.7

Spectral Power Distribution (SPD)



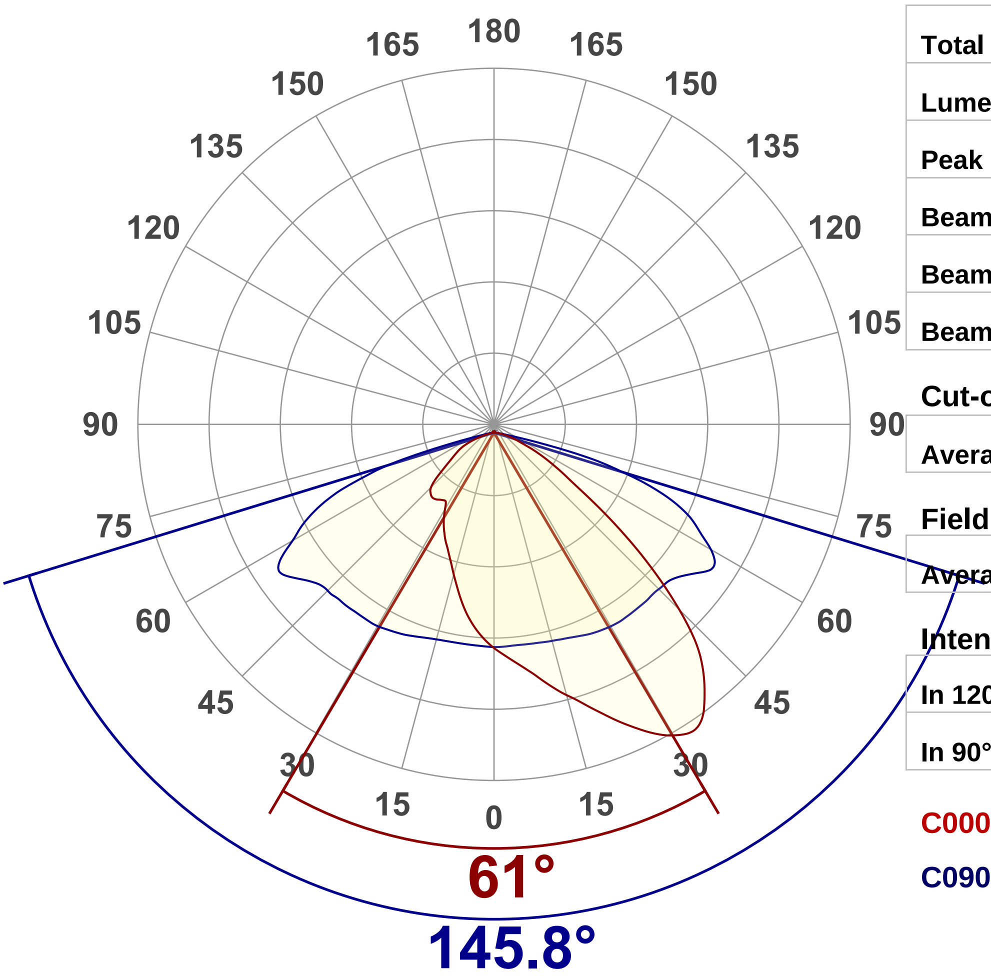
Input Power Curve



Optic Specifications

Correlated Colour Temperature, Target	4000K
Correlated Colour Temperature, Measured	3998K
Colour Rendering Index	CRI 79.6
R9 Value	R9 = -11.8
Colour Rendering TM30-18	R_f 81.3 - R_g 90.1
Colour Quality Scale	CQS = 79.7
Beam Angle	71.6°

Angular Distribution – 0° / 90° Plane



Main Values

Total Lumen Output	22078 lm
Lumen Up% / Down%	0.53 % / 99.47%
Peak Intensity	12225 cd
Beam Angle (50%)	71.6°
Beam Angle (90%)	145.8°
Beam Angle (10%)	61.6°

Cut-off Angle

Average 2.5%	160.3°

Field Angle

Average 10%	146.1°

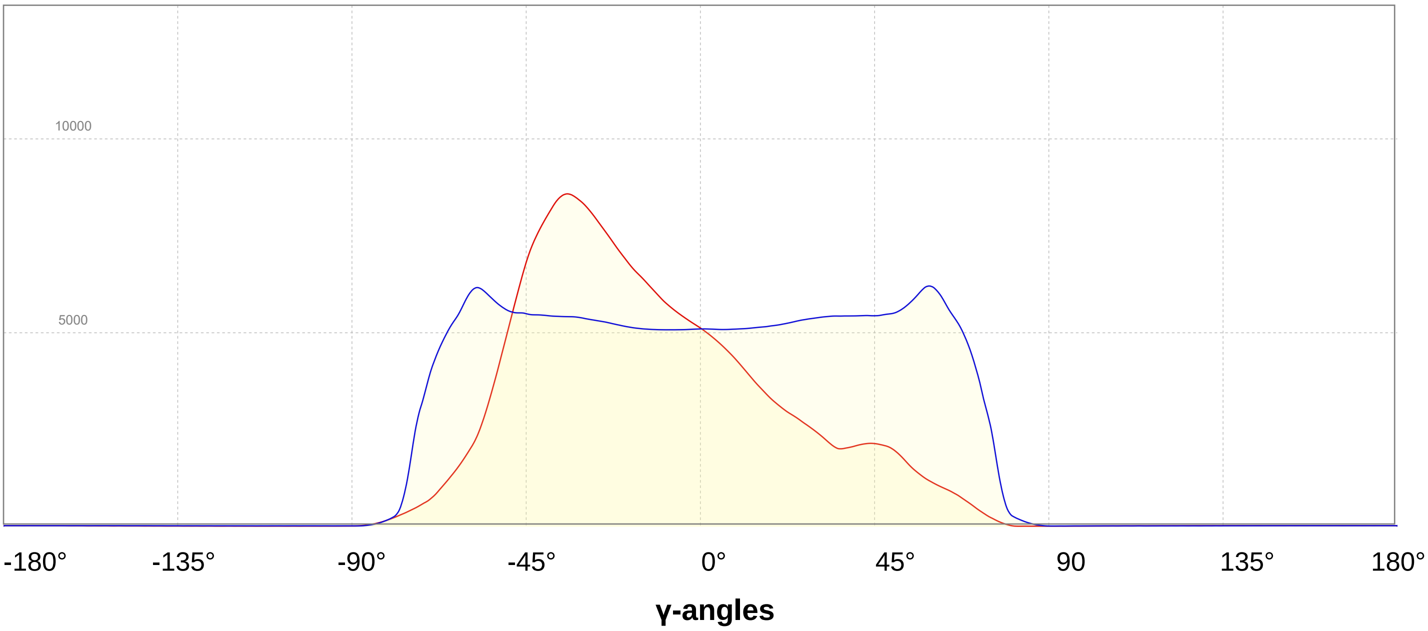
Intensity Ratio

In 120° Cone	75.6%
In 90° Cone	44.8%

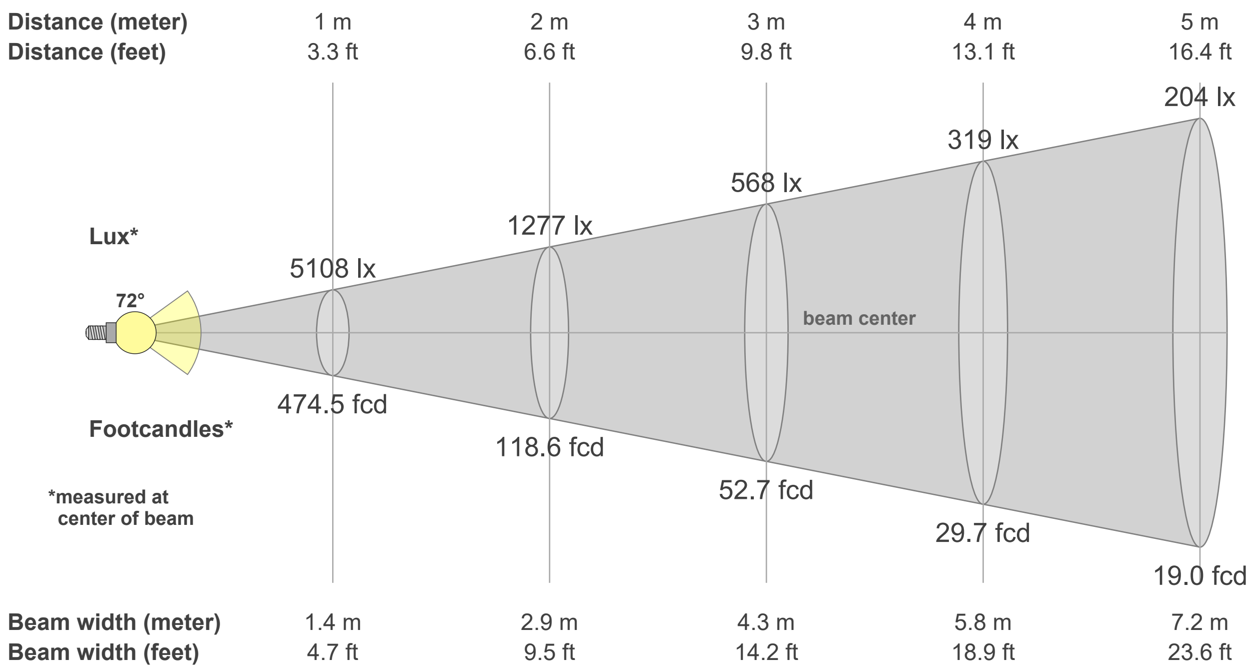
C000-C180

C090-C270

Linear Distribution Diagram – Intensity (candela) vs γ-angle



Beam Details



Beam intensities from 1 – 20m

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**m**
3.3	6.6	9.8	13.1	16.4	19.7	23	26.2	29.5	32.8	36.1	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3	65.6	ft
5108	1277	568	319	204	142	104	80	63	51	42	35	30	26	23	20	18	16	14	13	lux
474.5	118.	52.7	29.7	19	13.2	9.7	7.4	5.9	4.7	3.9	3.3	2.8	2.4	2.1	1.9	1.6	1.5	1.3	1.2	fc

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°**	**γ**
5108	5455	5871	6408	6982	7671	8305	8565	7939	6807	4950	3102	1919	1230	695	414	200	60	16	14	cd
100%	107%	115%	125%	137%	150%	163%	168%	155%	133%	97%	61%	38%	24%	14%	8%	4%	1%	0%	0%	of 0°val

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°**	**γ**
5108	5085	5099	5139	5199	5302	5384	5430	5434	5439	5508	5859	6176	5475	4454	2550	336	91	17	17	cd
100%	100%	100%	101%	102%	104%	105%	106%	106%	106%	108%	115%	121%	107%	87%	50%	7%	2%	0%	0%	of 0°val

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°**	**γ**
5108	4724	4213	3633	3148	2797	2437	2041	2081	2141	1973	1488	1136	892	568	234	33	12	12	13	cd
100%	92%	82%	71%	62%	55%	48%	40%	41%	42%	39%	29%	22%	17%	11%	5%	1%	0%	0%	0%	of 0°val

Intensities in 270° c-plane

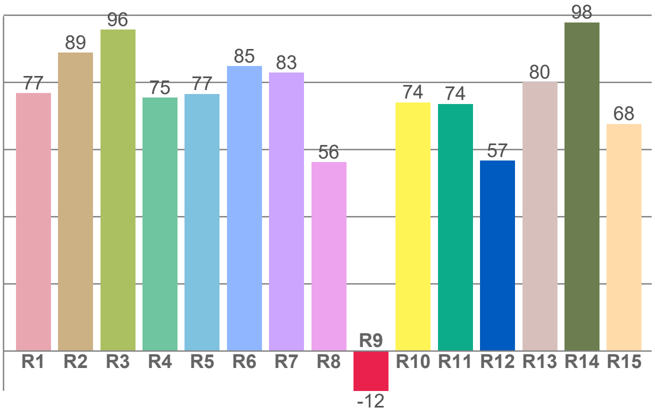
0°	**5°**	**10°**	**15°**	**20°**	**25°**	**30°**	**35°**	**40°**	**45°**	**50°**	**55°**	**60°**	**65°**	**70°**	**75°**	**80°**	**85°**	**90°**	**95°**	**γ**
5108	5079	5077	5102	5176	5284	5370	5417	5447	5491	5589	5993	5950	5081	3886	1632	212	48	19	19	cd
100%	99%	99%	100%	101%	103%	105%	106%	107%	107%	109%	117%	116%	99%	76%	32%	4%	1%	0%	0%	Of 0°val

Colour Details

Correlated Colour Temperature, Target	CCT = 4000K
Correlated Colour Temperature, Measured	CCT = 3998K
Colour Rendering Index	CRI 79.6
Colour Rendering Index R9 Value	R9 = -11.8
Colour Rendering TM30-18	R_f 81.3, R_g 90.1
Colour Quality Scale	CQS = 79.7

MacAdam Steps	SDCM = 4.3
Colour Coordinates CIE 1931	(x;y) = (0.381;0.377)
Colour Coordinates CIEs 1960	(u;v) = (0.225; 0.334)
Colour Deviation from BBL	Duv = 0.0052
Colour Coordinate CIEs 1976 (CIELUV)	(u';v') = (0.225;0.225)

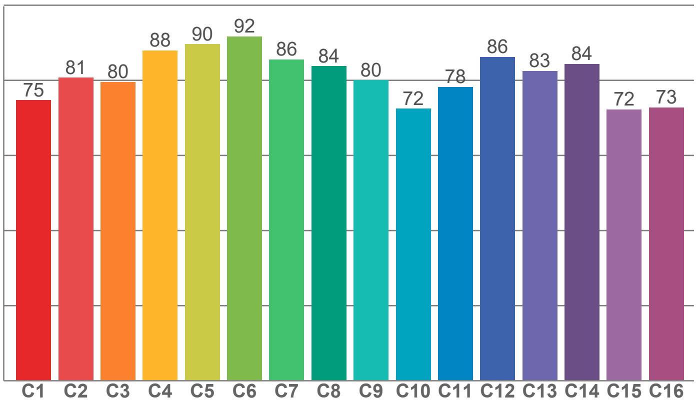
Colour Rendering Index per reference colour (CIE 1995)



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
76.7	88.8	95.6	75.4	76.5	84.8	82.8	56.2	-11.8	74.0	73.6	56.7	80.0	97.8	67.6

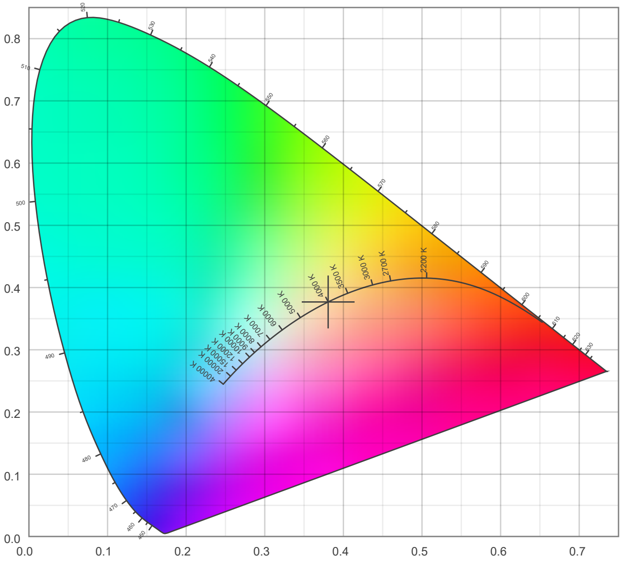
TM30-18 Rf-values per hue bin



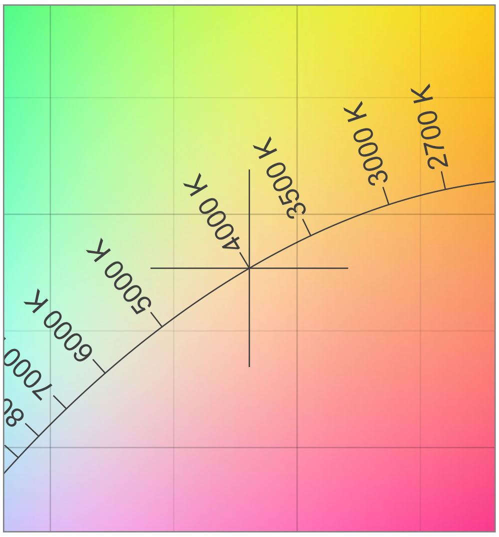
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
74.7	80.7	79.5	87.9	89.6	91.7	85.6	83.8	80.0	72.4	78.2	86.2	82.5	84.4	72.3	72.8

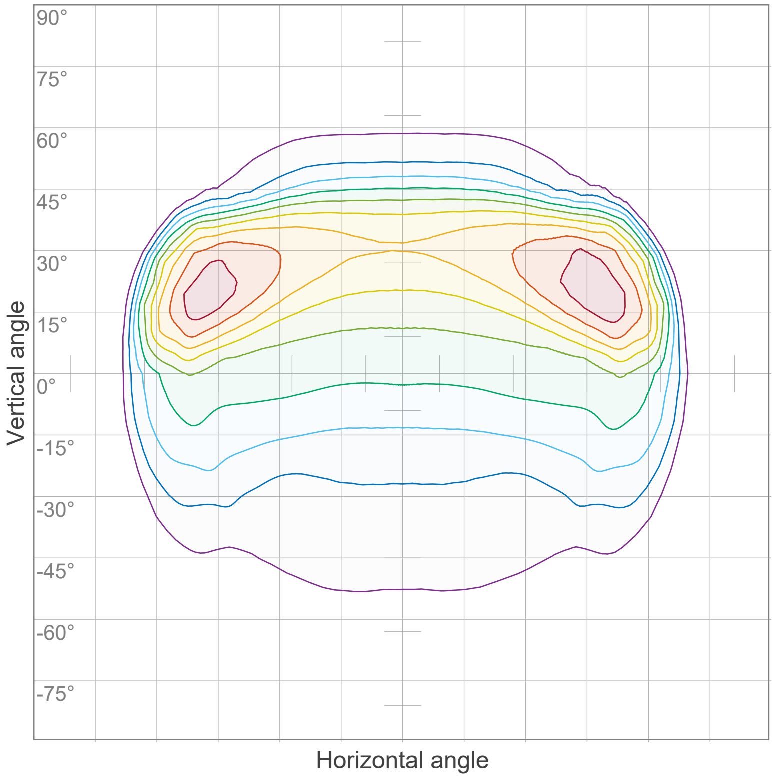
CIE 1931



CIE 1931 – Zoomed



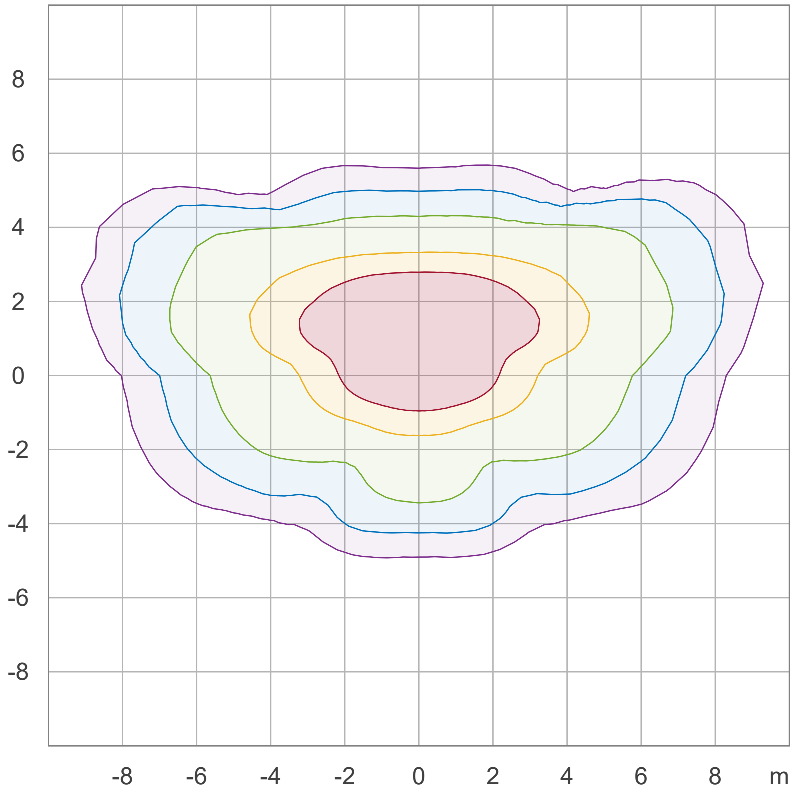
Iso-intensity Diagram (Iso-Candela)



🟥	90 %	10983.9 cd
🟧	80 %	9763.5 cd
🟨	70 %	8543.1 cd
🟨	60 %	7322.6 cd
🟩	50 %	6102.2 cd
🟩	40 %	4881.7 cd
🟦	30 %	3661.3 cd
🟦	20 %	2440.9 cd
🟪	10 %	1220.4 cd

Peak intensity: 12204.4 cd
Number of c-planes: 72

Iso-illuminance Diagram (Iso-lux)



🟥	50.0 %	321.9 lx
🟨	30.0 %	193.1 lx
🟩	10.0 %	64.4 lx
🟦	5.0 %	32.2 lx
🟪	3.0 %	19.3 lx

Peak illuminance: 643.7 lx
Mounting height: 3.0 m
Number of c-planes: 72

Light Planning – UGR table

Uncorrected, comprehensive UGR table according to 117-1995

Reflectances										
ρ Ceiling	70	70	50	50	30	70	70	50	50	30
ρ Walls	50	30	50	30	30	50	30	50	30	30
ρ Floor	20	20	20	20	20	20	20	20	20	20
Room size H = mounting height above eye level **X** **Y**	**Viewed Crosswise** (Viewing direction orthogonal to lamp length axis)					**Viewed Endwise** (Viewing direction parallel to lamp length axis)				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Variations with the observer position for the luminaire spacings, S:

n/a	n/a	n/a
n/a	n/a	n/a
n/a	n/a	n/a

UGR data could not be calculated due to missing dimensions. Goto Edit->Photometric->Dimensions and set the fixture/lamp dimensions.

Coefficients of Utilization

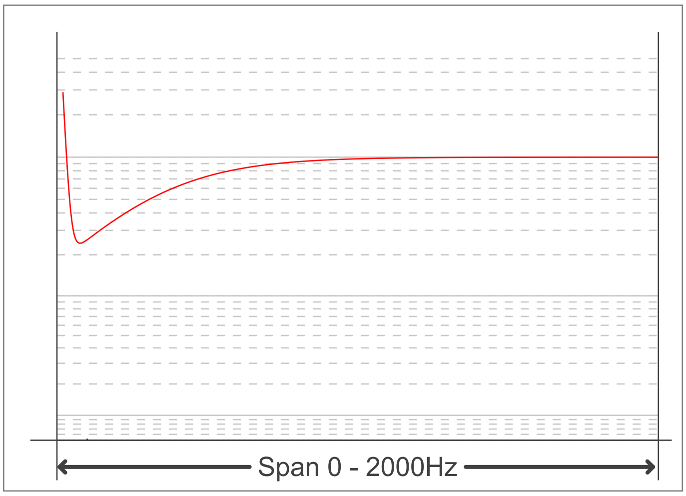
Ceiling reflectance		80			70			50			30			10			0	
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0
RCR	(RCR: Room Cavity Ratio)						Room Values are expressed as percentage of Lumen delivered to the task surface											
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	99
1	108	104	99	95	106	101	97	94	97	94	91	93	90	88	89	87	85	83
2	98	89	82	76	95	87	80	75	83	78	73	80	75	71	77	73	70	67
3	88	77	68	61	86	75	67	61	72	65	60	69	63	58	67	62	57	55
4	80	67	58	51	77	66	57	50	63	55	49	61	54	49	58	53	48	46
5	73	59	50	42	71	58	49	42	56	48	42	54	47	41	52	46	41	38
6	67	53	43	36	65	52	43	36	50	42	36	48	41	35	46	40	35	33
7	61	47	38	31	60	46	37	31	45	37	31	43	36	31	42	35	30	28
8	57	43	34	27	55	42	33	27	40	33	27	39	32	27	38	31	27	25
9	53	39	30	24	51	38	30	24	37	29	24	36	29	24	35	28	24	22
10	49	35	27	22	48	35	27	22	34	26	21	33	26	21	32	26	21	19

Flicker Details

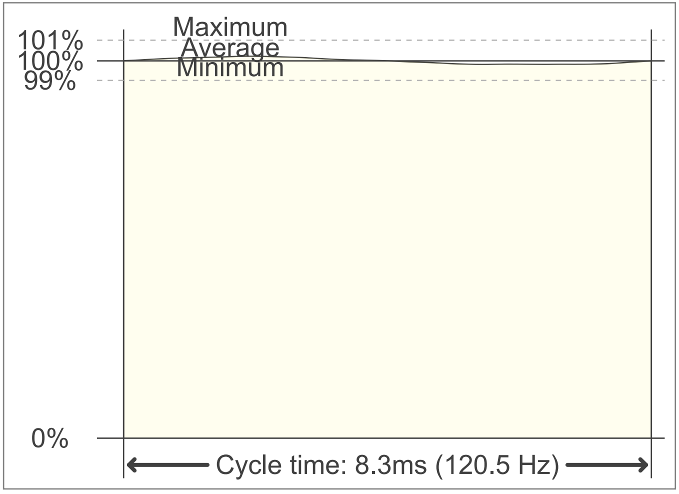
Flicker Meter Type	Viso Systems LabFlicker
Frequency of Input Power	60 Hz
Flicker/TLA Sample Rate	20000 sample/s
Measurement Time	
PstLM	180 sec
All other indices	1.2 sec

Flicker Indices	**(IES)**
Flicker Percentage	1.17%
Flicker Frequency	120.48 Hz
Flicker Index	0
Flicker SVM Value	0.04
Flicker PstLM Value	0.01

Flicker Frame



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/Modulation Plot