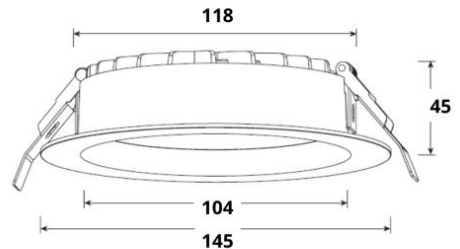




Product Overview

Product Name / Code	KARGO 15W Downlight - LC3621 (4000K)
Description	120mm Cutout, White Trim, Tri-Colour, IP54, Phase Dim
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

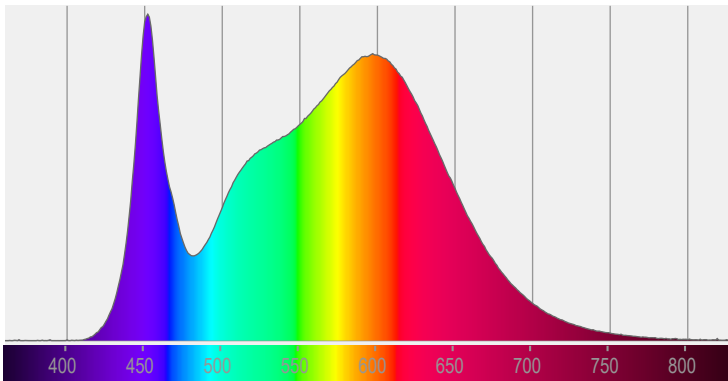
Test Date and Time	28/07/2023 10:59:23 AM
Operator	Johnny Elmer
C-Planes Measured	24
Measurement Resolution	15°
Measurement Distance	446.4cm
Measurement Number	VFR-230728-0150-MS
Tracking Link	http://www.visosystems.com/tracking/?id=VT230802-009729



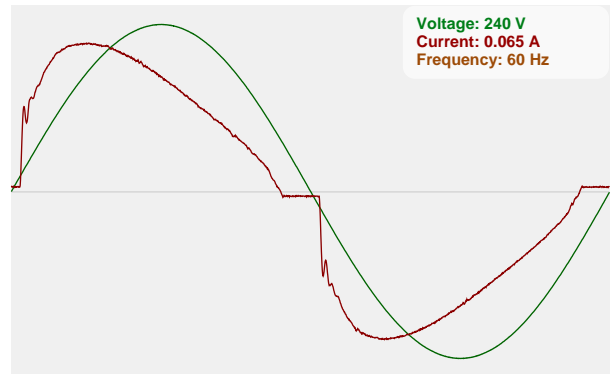
Performance

Total Lumen Output	1540lm
Light Efficiency	109 Lumen/Watt
Peak (cd)	643cd
Nominal Power	14.1W
Input Voltage	240V
Frequency of Input Power	60Hz
Power Factor	0.91
Warm-up (stabilisation) Time	Lamp stabilized in 1 hour 14 min
Warm-up Variation	-4.4%

Spectral Power Distribution (SPD)



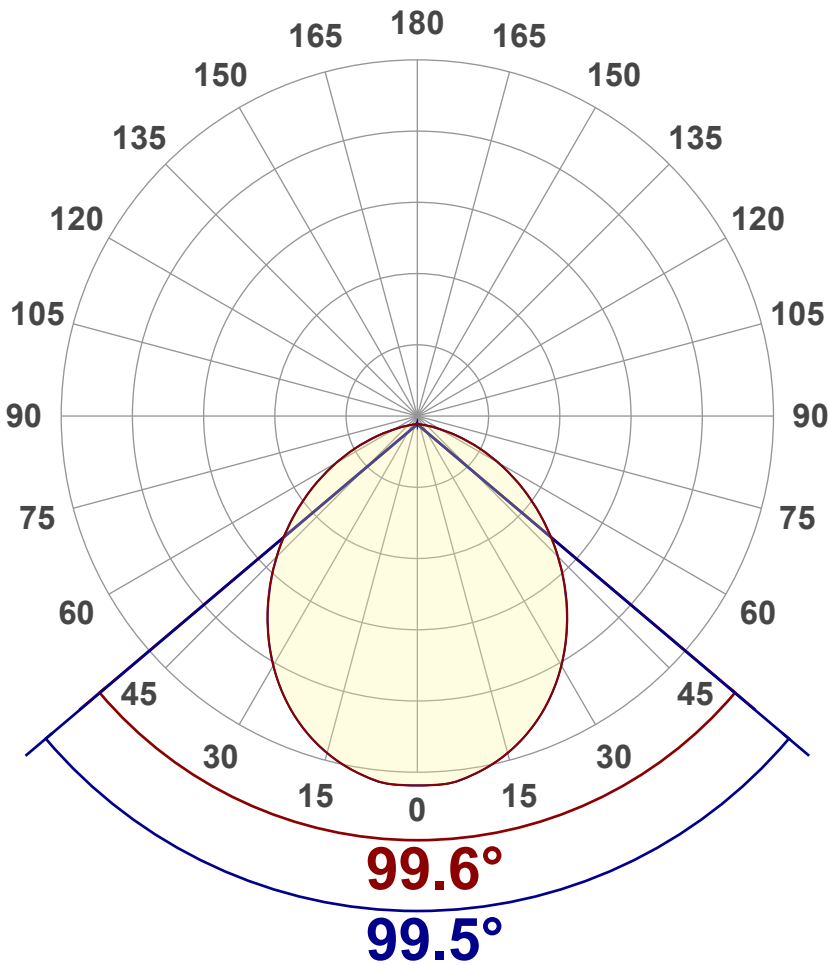
Input Power Curve



Optic Specifications

Correlated Colour Temperature, Target	4000K
Correlated Colour Temperature, Measured	3941K
Colour Rendering Index	CRI 85.2
R9 Value	R9 = 17.9
Colour Rendering TM30-18	R _f 85.0 - R _g 96.5
Colour Quality Scale	CQS = 83.3
Beam Angle	99.4°



Angular Distribution – 0° / 90° Plane

Main Values

Total Lumen Output	1540 lm
Lumen Up% / Down%	0.13 % / 99.87%
Peak Intensity	643 cd
Beam Angle (50%)	99.4°
Beam Angle (90%)	99.5°
Beam Angle (10%)	99.3°

Cut-off Angle

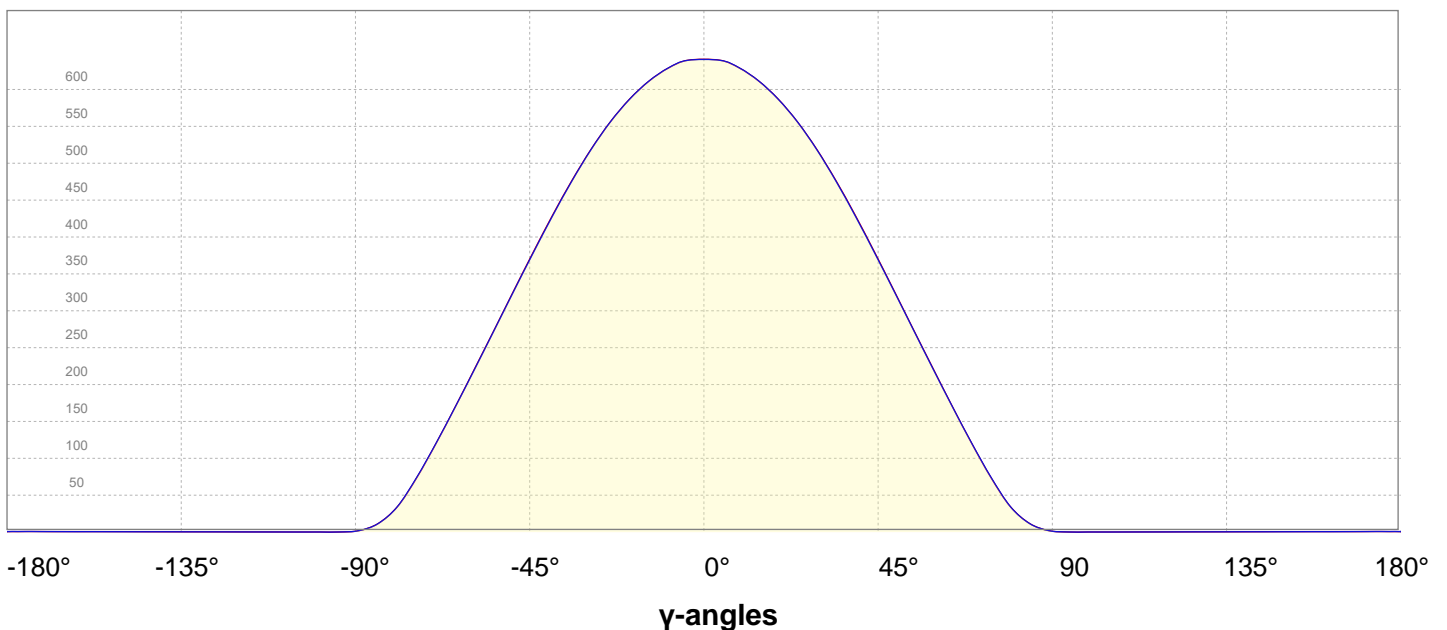
Average 2.5%	166.1°
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Field Angle

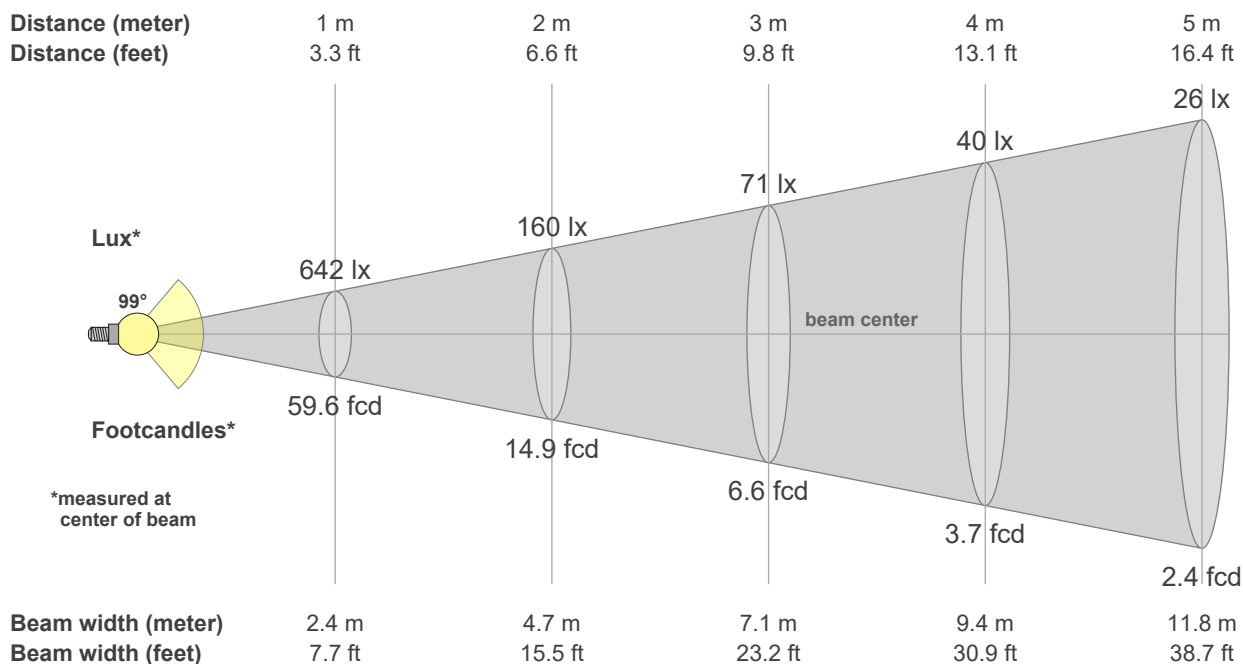
Average 10%	150.4°
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Intensity Ratio

In 120° Cone	84.2%
In 90° Cone	59.9%

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
642	160	71	40	26	18	13	10	8	6	5	4	4	3	3	3	2	2	2	2	lux
59.6	14.9	6.6	3.7	2.4	1.7	1.2	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	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
642	638	626	607	582	550	512	468	420	370	318	265	213	162	113	67	31	10	2	0	cd
100%	99%	98%	95%	91%	86%	80%	73%	65%	58%	50%	41%	33%	25%	18%	10%	5%	2%	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
642	638	626	607	582	550	511	467	420	369	317	265	213	162	113	68	30	10	2	0	cd
100%	99%	98%	95%	91%	86%	80%	73%	65%	57%	49%	41%	33%	25%	18%	11%	5%	2%	0%	0%	of 0°val

Intensities in 180° c-plane {INT_TABLE_180_START}

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	γ
																				cd
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	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
642	638	626	607	582	550	511	467	420	369	317	265	213	162	113	68	30	10	2	0	cd
100%	99%	98%	95%	91%	86%	80%	73%	65%	57%	49%	41%	33%	25%	18%	11%	5%	2%	0%	0%	Of 0°val

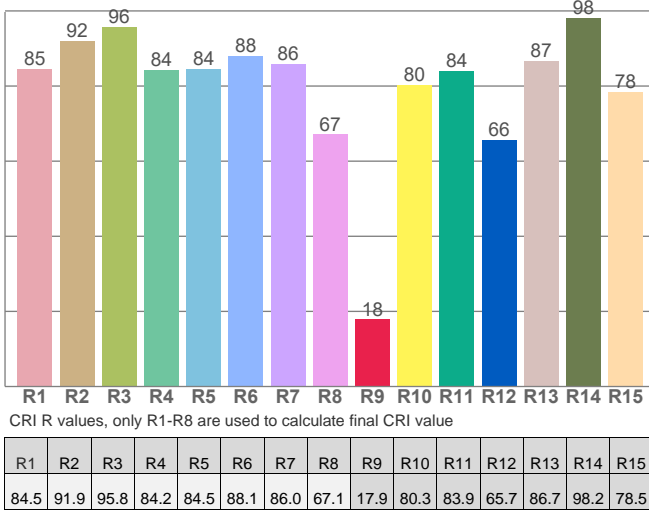


Colour Details

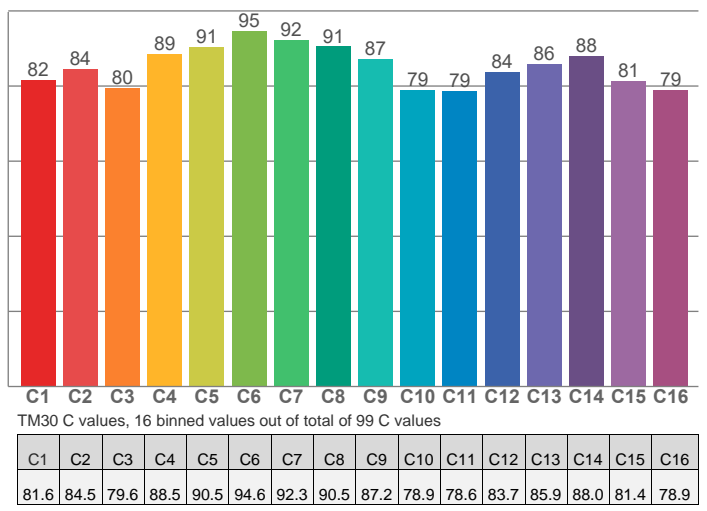
Correlated Colour Temperature, Target	CCT = 4000K
Correlated Colour Temperature, Measured	CCT = 3941K
Colour Rendering Index	CRI 85.2
Colour Rendering Index R9 Value	R9 = 17.9
Colour Rendering TM30-18	R _f 85.0, R _g 96.5
Colour Quality Scale	CQS = 83.3

MacAdam Steps	SDCM = 2.2
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 = -0.0025
Colour Coordinate CIEs 1976 (CIELUV)	(u';v') = (0.225;0.502)

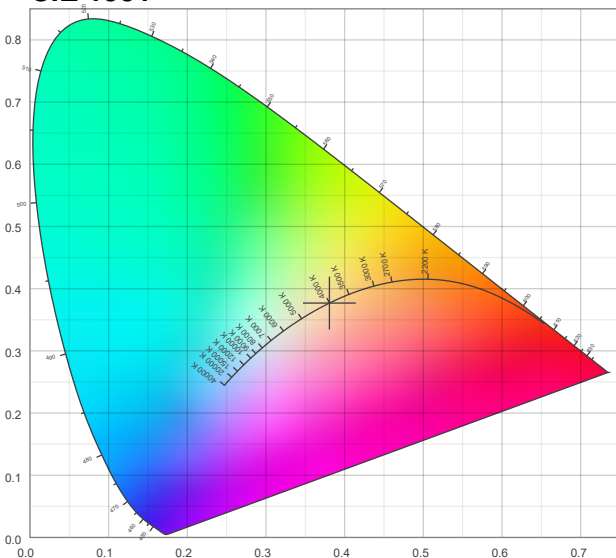
Colour Rendering Index per reference colour (CIE 1995)



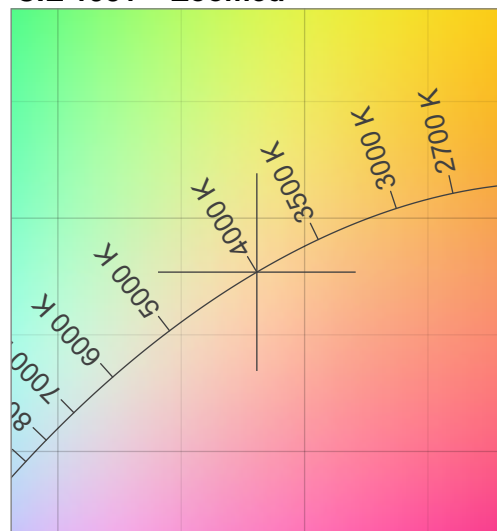
TM30-18 R_f-values per hue bin



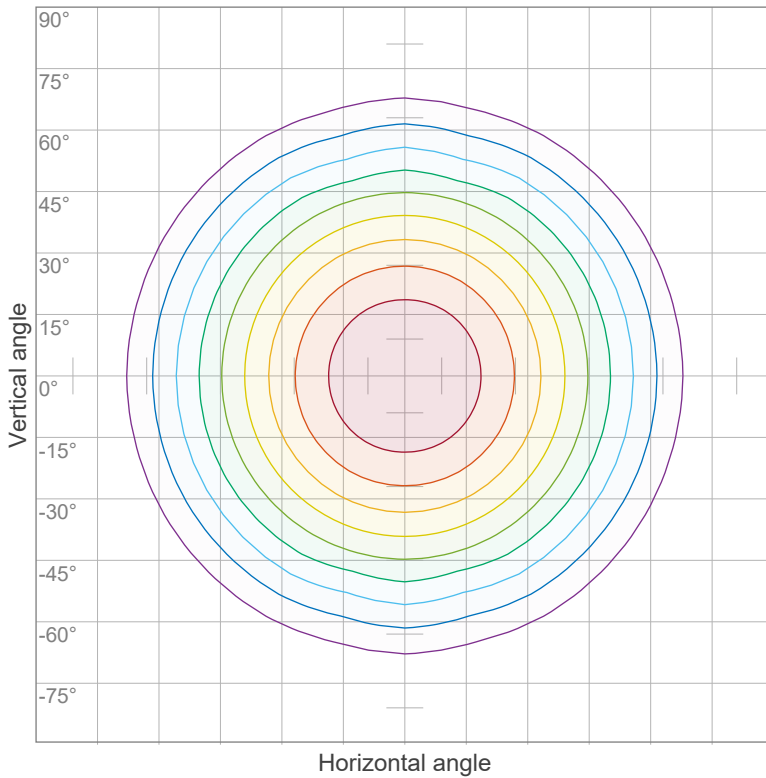
CIE 1931



CIE 1931 – Zoomed



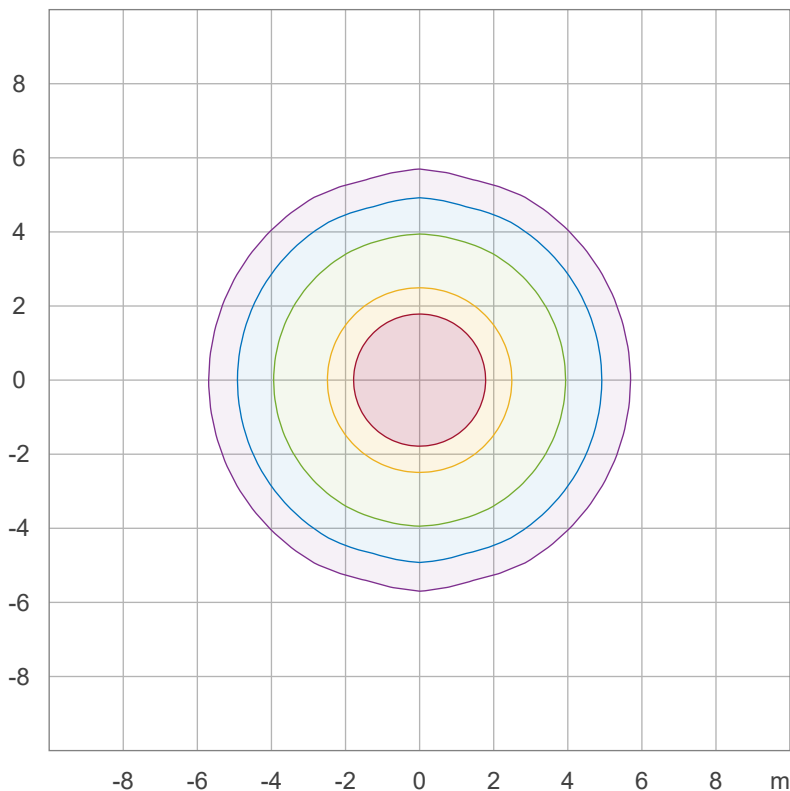
Iso-intensity Diagram (Iso-Candela)



90 %	577.7 cd
80 %	513.5 cd
70 %	449.4 cd
60 %	385.2 cd
50 %	321.0 cd
40 %	256.8 cd
30 %	192.6 cd
20 %	128.4 cd
10 %	64.2 cd

Peak intensity: 641.9 cd
Number of c-planes: 24

Iso-illuminance Diagram (Iso-lux)



50.0 %	35.7 lx
30.0 %	21.4 lx
10.0 %	7.1 lx
5.0 %	3.6 lx
3.0 %	2.1 lx

Peak illuminance: 71.3 lx
Mounting height: 3.0 m
Number of c-planes: 24



Light Planning – UGR table

Uncorrected, comprehensive UGR table according to 117-1995

Reflectances		70	70	50	50	30	70	70	50	50	30
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		Viewed Crosswise					Viewed Endwise				
H = mounting height above eye level											
X	Y	(Viewing direction orthogonal to lamp length axis)					(Viewing direction parallel to lamp length axis)				
2H	2H	25.5	26.6	25.7	26.9	27.1	25.6	26.7	25.8	27.0	27.2
	3H	26.3	27.5	26.7	27.7	27.9	26.4	27.6	26.8	27.9	28.1
	4H	26.6	27.7	27.0	28.0	28.2	26.7	27.8	27.1	28.1	28.4
	6H	26.7	27.7	27.0	28.0	28.4	26.9	27.9	27.2	28.1	28.5
	8H	26.7	27.7	27.0	28.0	28.4	26.9	27.8	27.2	28.1	28.5
	12H	26.7	27.6	27.0	27.9	28.4	26.8	27.7	27.2	28.1	28.5
4H	2H	25.9	27.0	26.3	27.3	27.5	26.0	27.1	26.4	27.4	27.6
	3H	27.0	27.9	27.4	28.3	28.7	27.1	28.0	27.5	28.4	28.8
	4H	27.3	28.1	27.7	28.5	29.1	27.4	28.2	27.8	28.7	29.2
	6H	27.4	28.2	27.9	28.6	28.9	27.5	28.4	28.0	28.7	29.1
	8H	27.4	28.1	27.9	28.5	28.9	27.6	28.3	28.1	28.7	29.0
	12H	27.4	28.0	27.9	28.4	28.9	27.5	28.1	28.0	28.6	29.0
8H	4H	27.4	28.1	27.9	28.5	28.9	27.5	28.2	28.0	28.6	29.0
	6H	27.6	28.1	28.1	28.6	29.1	27.7	28.3	28.2	28.7	29.3
	8H	27.6	28.1	28.1	28.6	29.3	27.8	28.2	28.3	28.8	29.4
	12H	27.6	28.0	28.2	28.5	29.1	27.8	28.2	28.3	28.7	29.3
12H	4H	27.3	28.0	27.8	28.4	28.8	27.5	28.1	28.0	28.5	29.0
	6H	27.6	28.1	28.1	28.6	29.2	27.7	28.2	28.2	28.7	29.4
	8H	27.6	28.0	28.2	28.5	29.1	27.8	28.2	28.3	28.7	29.3

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

S = 1.0H	0.1 / -0.2	0.2 / -0.2
S = 1.5H	0.5 / -0.7	0.4 / -0.7
S = 2.0H	1.1 / -1.5	1.0 / -1.4

Coefficients of Utilization

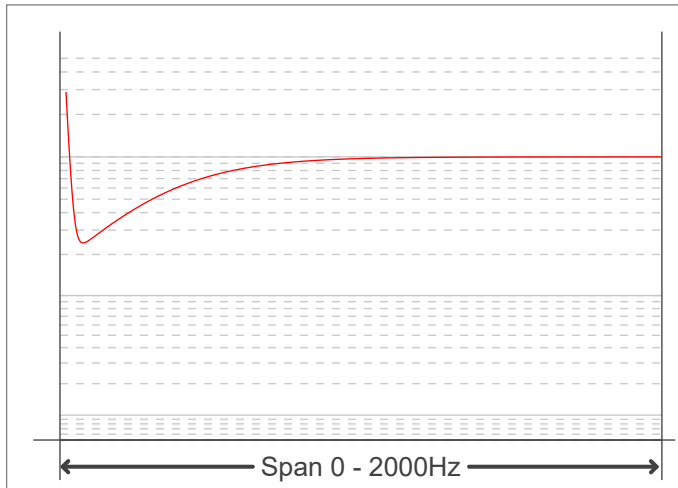
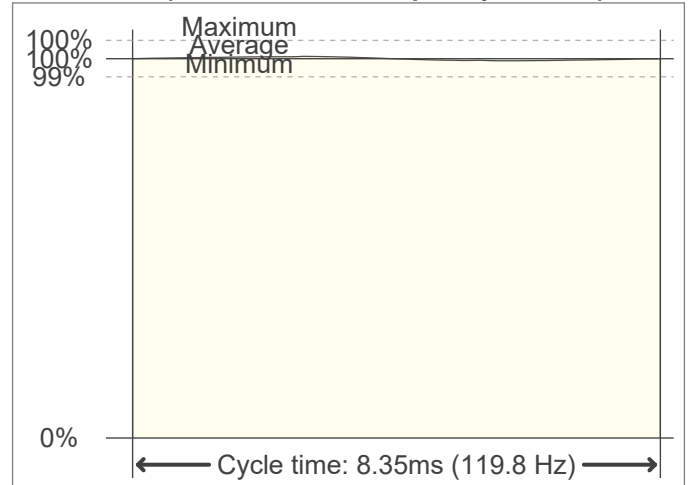
Ceiling reflectance	80	70	50	30	10	0												
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0			
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0			
RCR	(RCR: Room Cavity Ratio)																	
	Room Values are expressed as percentage of Lumen delivered to the task surface																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88	86
2	101	93	87	81	98	91	85	80	88	83	78	84	80	77	81	78	75	73
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	72	68	64	62
4	85	73	65	59	82	72	64	58	70	63	57	67	61	57	65	60	56	54
5	78	66	57	51	76	65	57	51	63	56	50	61	54	50	59	53	49	47
6	72	60	51	45	70	59	50	45	57	50	44	55	49	44	54	48	43	41
7	67	54	46	40	65	53	45	40	52	45	39	50	44	39	49	43	39	37
8	63	50	41	36	61	49	41	36	48	40	35	46	40	35	45	39	35	33
9	59	46	38	32	57	45	37	32	44	37	32	43	36	32	42	36	32	30
10	55	42	34	29	54	42	34	29	41	34	29	40	33	29	39	33	29	27



Flicker Details

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

Flicker Indices (IES)	
Flicker Percentage	0.61%
Flicker Frequency	119.76Hz
Flicker Index	0
Flicker SVM Value	0.02
Flicker PstLM Value	0.03

Flicker Frame

Flicker FFT (flicker curve in frequency domain)

IEEE 1789 Frequency/Modulation Plot
