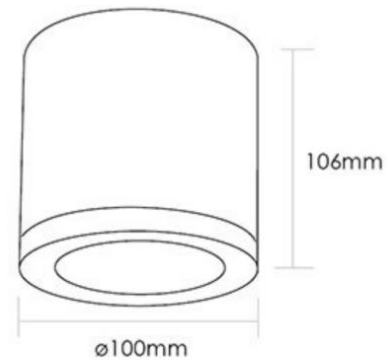




Product Overview

Product Name / Code	LITHO 9W Can Light - LC4106
Description	3000K, Frosted Lens, Black, 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

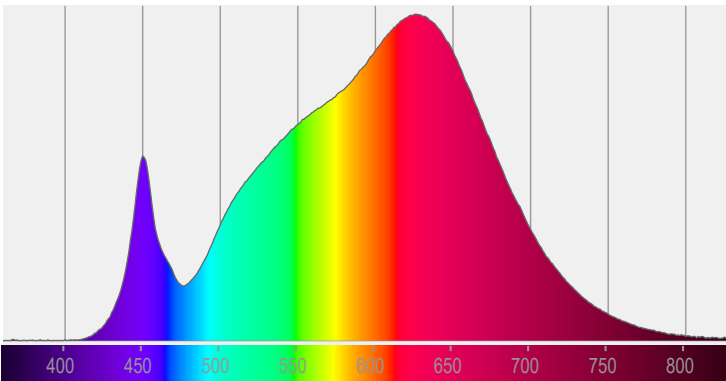
Test Date and Time	24/08/2023 2:38:29 PM
Operator	JE
C-Planes Measured	16
Measurement Resolution	22.5°
Measurement Distance	439.0cm
Measurement Number	VFR-230824-0184-MS
Tracking Link	http://www.visosystems.com/tracking/?id=VT230825-000333



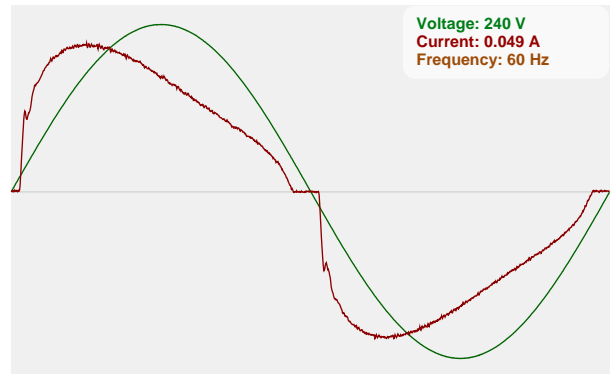
Performance

Total Lumen Output	904lm
Light Efficiency	82 Lumen/Watt
Peak (cd)	922cd
Nominal Power	11.0W
Input Voltage	240V
Frequency of Input Power	60Hz
Power Factor	0.93
Warm-up (stabilisation) Time	Lamp stabilized in 1 hour 2 min
Warm-up Variation	-2.1%

Spectral Power Distribution (SPD)



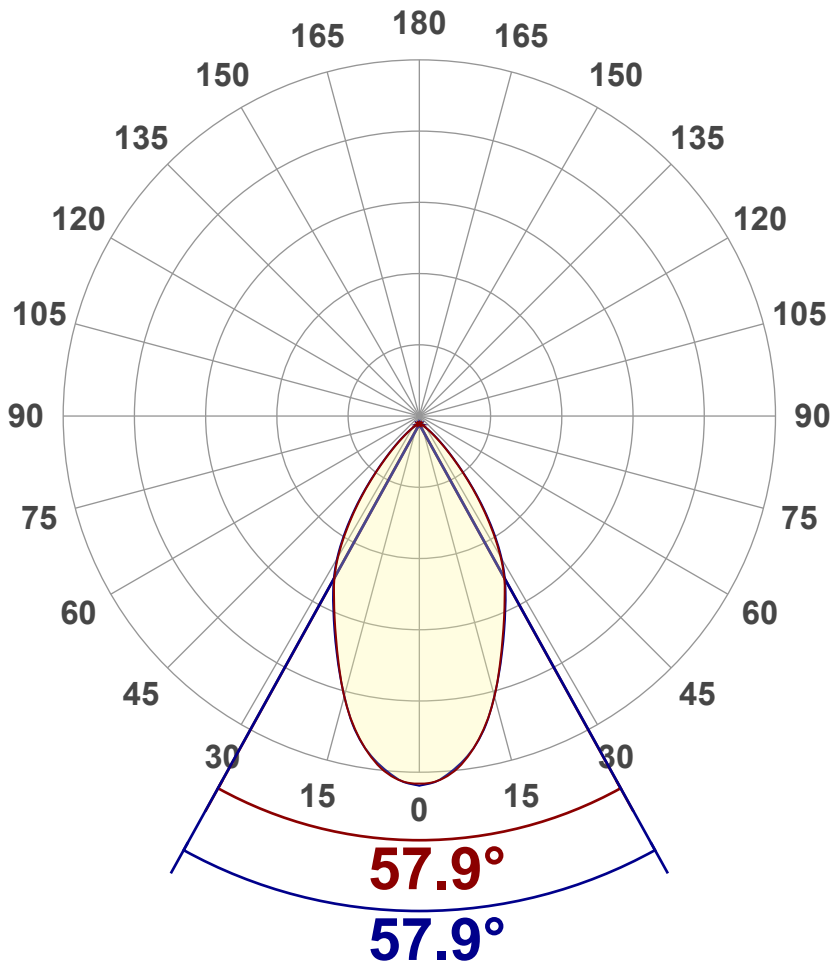
Input Power Curve



Optic Specifications

Correlated Colour Temperature, Target	3000K
Correlated Colour Temperature, Measured	3004K
Colour Rendering Index	CRI 92.7
R9 Value	R9 = 67.4
Colour Rendering TM30-18	R _f 91.5 - R _g 101.3
Colour Quality Scale	CQS = 90.7
Beam Angle	57.9°



Angular Distribution – 0° / 90° Plane

Main Values

Total Lumen Output	904 lm
Lumen Up% / Down%	0.15 % / 99.85%
Peak Intensity	922 cd
Beam Angle (50%)	57.9°
Beam Angle (90%)	57.9°
Beam Angle (10%)	57.9°

Cut-off Angle

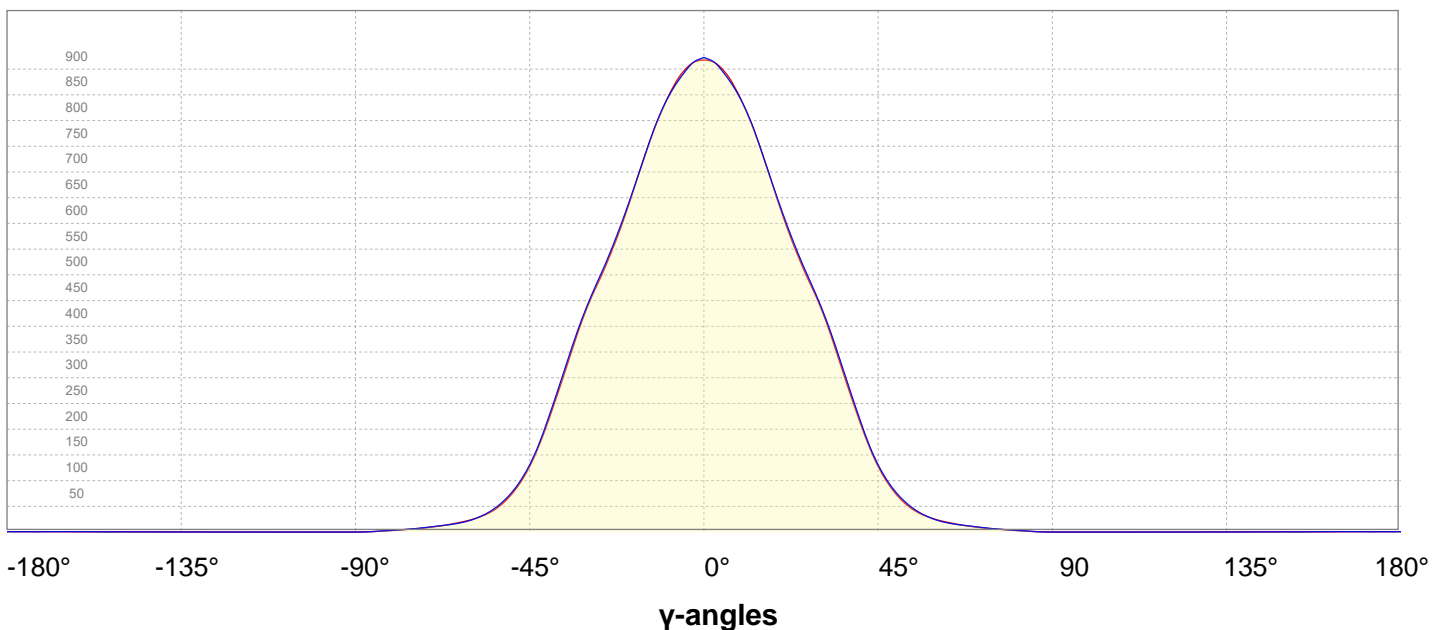
Average 2.5%	120.8°
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Field Angle

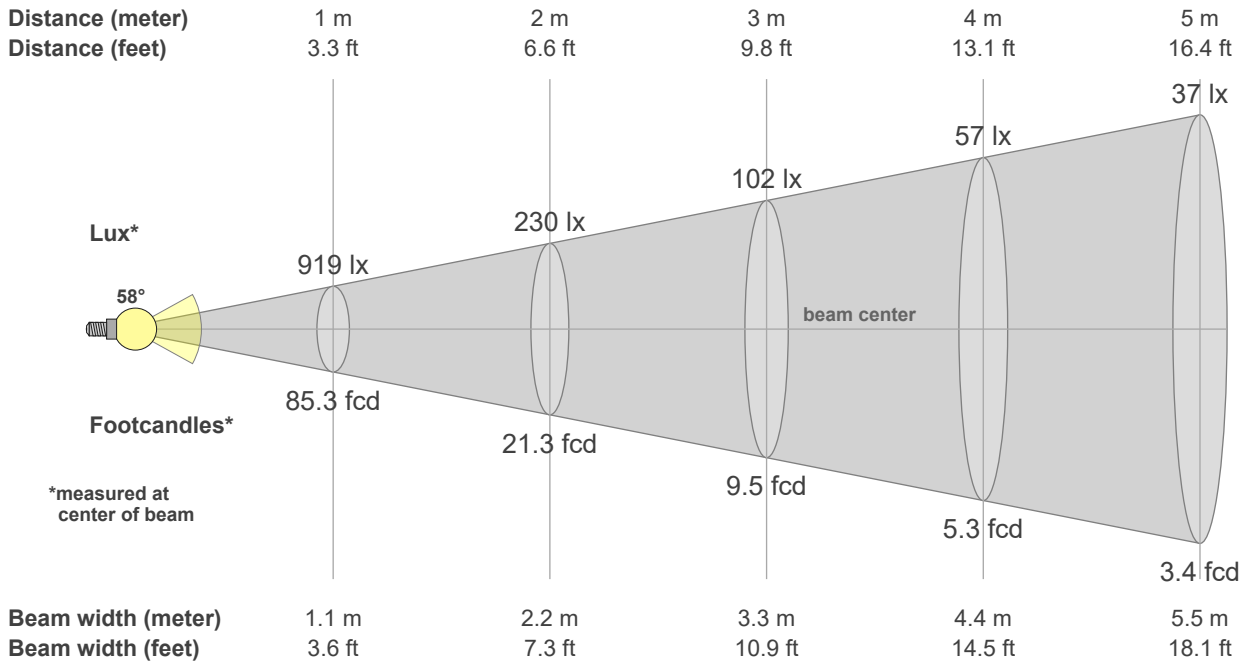
Average 10%	96°
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Intensity Ratio

In 120° Cone	97.2%
In 90° Cone	88.7%

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
919	230	102	57	37	26	19	14	11	9	8	6	5	5	4	4	3	3	3	2	lux
85.3	21.3	9.5	5.3	3.4	2.4	1.7	1.3	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	fc

Intensities in 0° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
919	914	905	888	863	833	798	759	715	669	624	581	542	507	473	438	399	355	309	264	cd
100%	100%	99%	97%	94%	91%	87%	83%	78%	73%	68%	63%	59%	55%	52%	48%	43%	39%	34%	29%	of 0°val

Intensities in 90° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
919	916	902	883	861	834	799	759	715	670	627	586	548	512	478	443	403	360	315	270	cd
100%	100%	98%	96%	94%	91%	87%	83%	78%	73%	68%	64%	60%	56%	52%	48%	44%	39%	34%	29%	of 0°val

Intensities in 180° c-plane {INT_TABLE_180_START}

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	γ
																				cd
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	of 0°val

Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°	γ
919	916	902	883	861	834	799	759	715	670	627	586	548	512	478	443	403	360	315	270	cd
100%	100%	98%	96%	94%	91%	87%	83%	78%	73%	68%	64%	60%	56%	52%	48%	44%	39%	34%	29%	Of 0°val

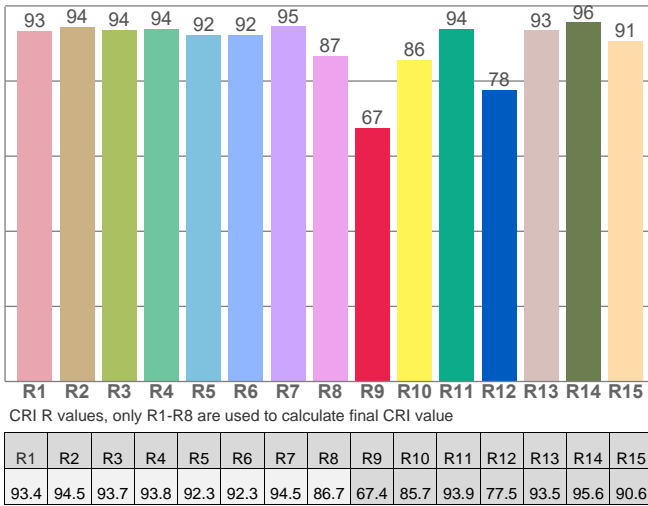


Colour Details

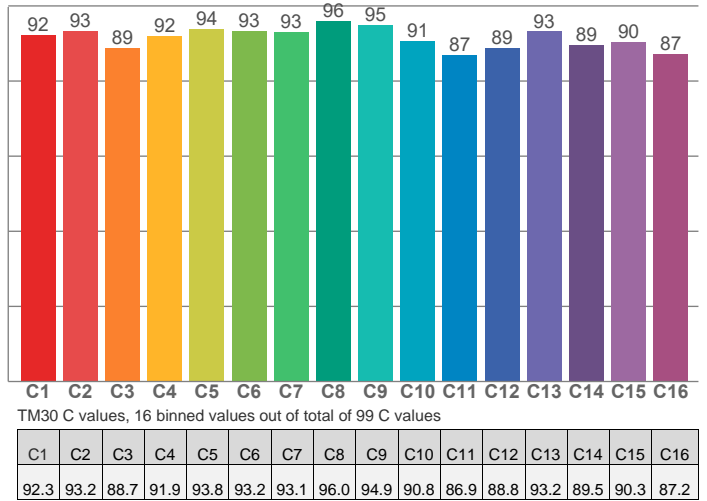
Correlated Colour Temperature, Target	CCT = 3000K
Correlated Colour Temperature, Measured	CCT = 3004K
Colour Rendering Index	CRI 92.7
Colour Rendering Index R9 Value	R9 = 67.4
Colour Rendering TM30-18	R _f 91.5, R _g 101.3
Colour Quality Scale	CQS = 90.7

MacAdam Steps	SDCM = 0.4
Colour Coordinates CIE 1931	(x;y) = (0.437;0.404)
Colour Coordinates CIEs 1960	(u;v) = (0.251; 0.348)
Colour Deviation from BBL	Duv = 0.0004
Colour Coordinate CIEs 1976 (CIELUV)	(u';v') = (0.251;0.521)

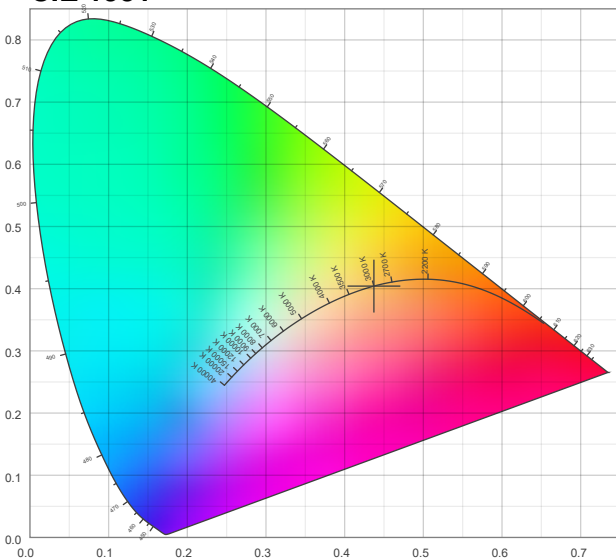
Colour Rendering Index per reference colour (CIE 1995)



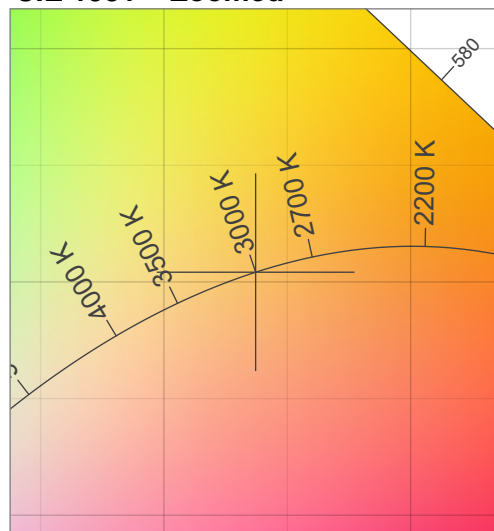
TM30-18 Rf-values per hue bin



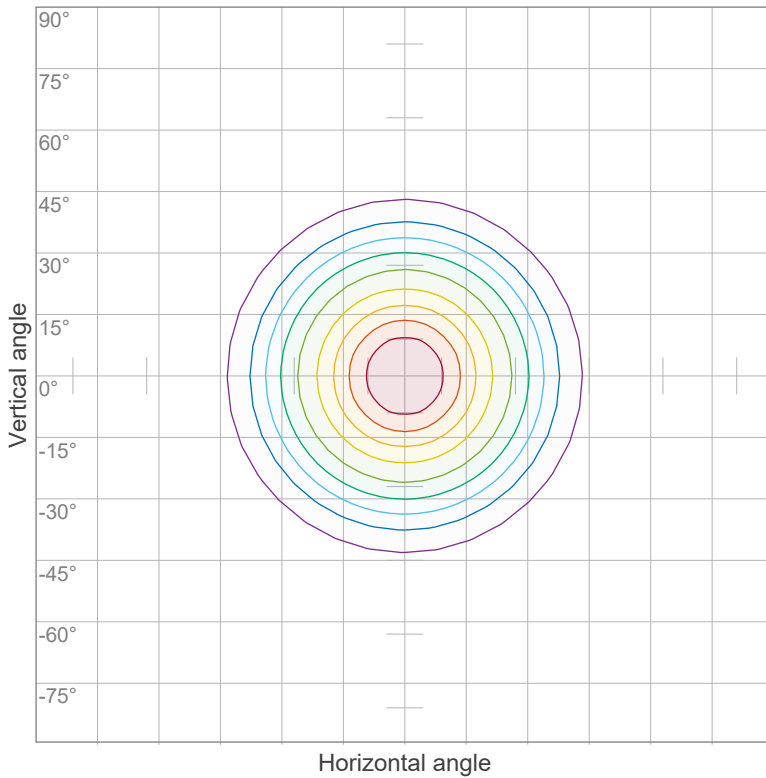
CIE 1931



CIE 1931 – Zoomed



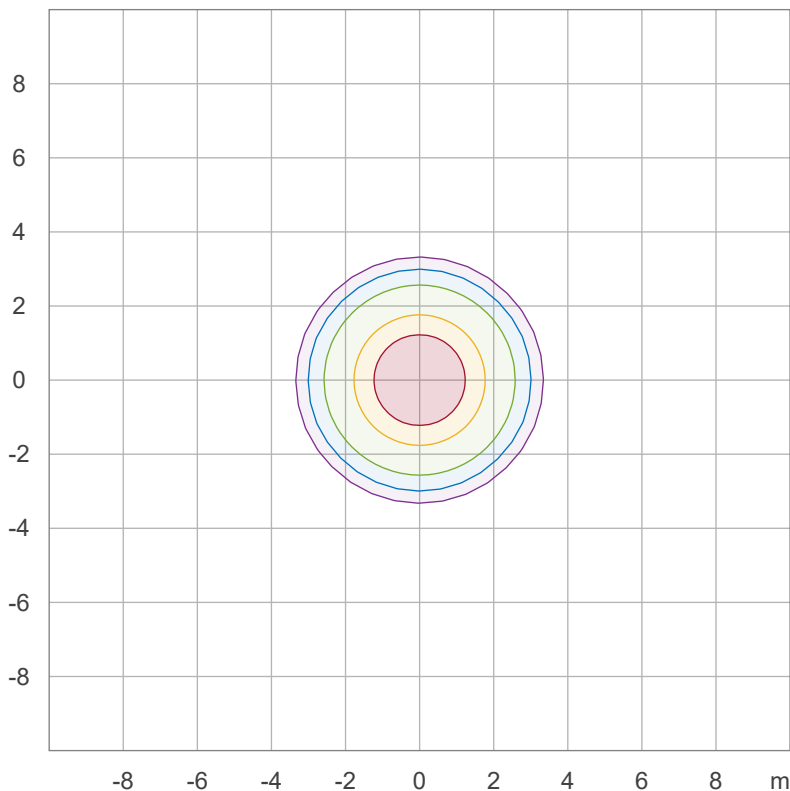
Iso-intensity Diagram (Iso-Candela)



90 %	827.2 cd
80 %	735.3 cd
70 %	643.4 cd
60 %	551.5 cd
50 %	459.5 cd
40 %	367.6 cd
30 %	275.7 cd
20 %	183.8 cd
10 %	91.9 cd

Peak intensity: 919.1 cd
Number of c-planes: 16

Iso-illuminance Diagram (Iso-lux)



50.0 %	51.0 lx
30.0 %	30.6 lx
10.0 %	10.2 lx
5.0 %	5.1 lx
3.0 %	3.1 lx

Peak illuminance: 102.1 lx
Mounting height: 3.0 m
Number of c-planes: 16



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	20.1	20.9	20.3	21.2	21.4	20.2	21.0	20.4	21.3	21.5
	3H	20.0	20.8	20.3	21.0	21.2	20.1	20.9	20.5	21.2	21.3
	4H	19.9	20.7	20.3	21.0	21.2	20.0	20.9	20.4	21.1	21.3
	6H	19.9	20.6	20.2	20.9	21.3	20.0	20.7	20.3	21.0	21.4
	8H	19.9	20.6	20.2	20.9	21.3	20.0	20.7	20.3	21.0	21.4
	12H	19.8	20.5	20.2	20.8	21.3	20.0	20.6	20.3	21.0	21.4
4H	2H	19.9	20.7	20.3	20.9	21.2	20.0	20.8	20.4	21.1	21.3
	3H	19.9	20.6	20.3	20.9	21.3	20.0	20.7	20.4	21.0	21.4
	4H	19.8	20.4	20.2	20.8	21.4	19.9	20.5	20.4	21.0	21.5
	6H	19.8	20.4	20.3	20.7	21.1	19.9	20.5	20.4	20.8	21.2
	8H	19.7	20.3	20.2	20.6	21.0	19.8	20.4	20.4	20.8	21.1
	12H	19.7	20.1	20.2	20.5	21.0	19.8	20.2	20.3	20.7	21.1
8H	4H	19.7	20.3	20.2	20.6	21.0	19.8	20.4	20.3	20.7	21.1
	6H	19.7	20.1	20.2	20.5	21.1	19.8	20.2	20.3	20.7	21.2
	8H	19.7	20.0	20.2	20.5	21.2	19.8	20.1	20.3	20.7	21.3
	12H	19.6	19.9	20.2	20.4	21.0	19.8	20.0	20.4	20.5	21.2
12H	4H	19.7	20.1	20.2	20.5	21.0	19.8	20.2	20.3	20.6	21.1
	6H	19.7	20.0	20.2	20.5	21.2	19.8	20.1	20.3	20.7	21.3
	8H	19.6	19.9	20.2	20.4	21.0	19.8	20.0	20.4	20.5	21.2

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

S = 1.0H	2.9 / -4.4	2.9 / -4.3
S = 1.5H	5.2 / -6.7	5.2 / -6.4
S = 2.0H	7.0 / -8.0	7.0 / -7.6

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	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92
2	106	101	96	93	104	99	95	91	96	92	89	93	90	87	90	88	86	84
3	100	93	87	83	98	92	86	82	89	84	81	86	83	80	84	81	78	77
4	94	86	80	75	92	85	79	75	83	78	74	80	76	73	78	75	72	70
5	89	80	73	68	87	79	73	68	77	72	67	75	70	67	73	69	66	65
6	84	74	68	63	82	73	67	63	72	66	62	70	65	62	69	65	61	60
7	79	69	63	58	78	68	62	58	67	61	57	66	61	57	65	60	57	55
8	75	65	58	54	74	64	58	54	63	57	53	62	57	53	61	56	53	51
9	71	61	54	50	70	60	54	50	59	54	50	58	53	49	57	53	49	48
10	68	57	51	47	67	57	51	47	56	50	46	55	50	46	54	49	46	45

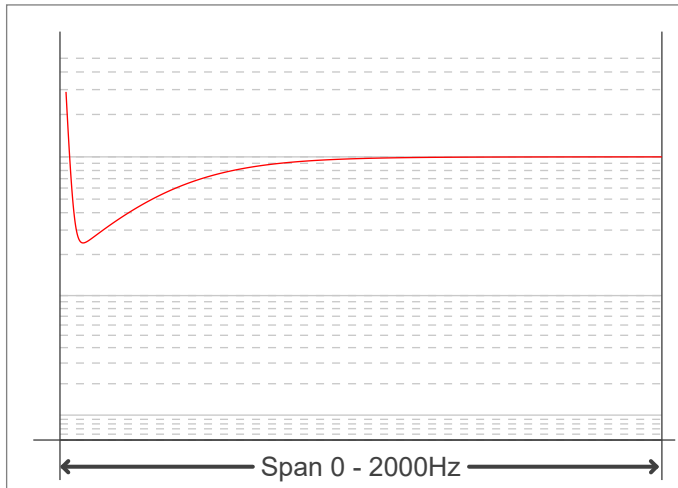


Flicker Details

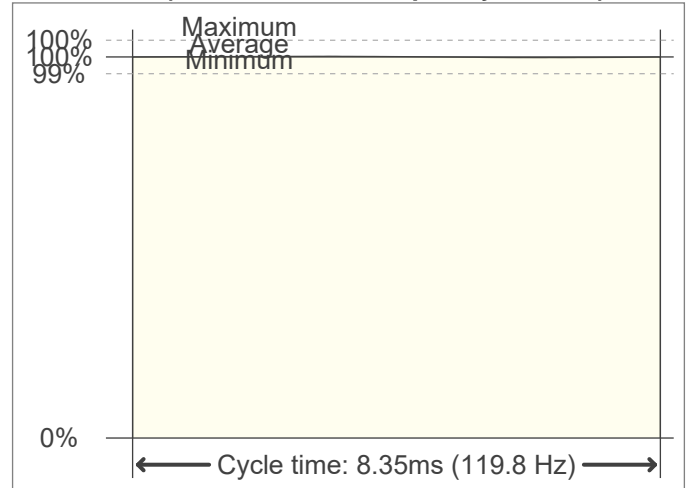
Flicker Meter Type	Viso Systems LabFlicker
Frequency of Input Power	60Hz
Flicker/TLA Sample Rate	20000 sample/s
Measurement Time	
PstLM	180 sec
All other indices	1.2 sec

Flicker Indices (IES)	
Flicker Percentage	0.22%
Flicker Frequency	119.76Hz
Flicker Index	0
Flicker SVM Value	0.01
Flicker PstLM Value	0.02

Flicker Frame



Flicker FFT (flicker curve in frequency domain)



IEEE 1789 Frequency/Modulation Plot

