

Goniophotometry Report

1_PHOT_NINETY-NINE-2275lmChip-3500K-WallWash_2309
www.factorylux.com



Tested Light Source - 1_PHOT_NINETY-NINE-2275lmChip-3500K-WallWash_2309

Laboratory and Equipment

Laboratory Owner and Location
Goniospectrometer System and Type
Spectrometer Manufacturer and Model

Factorylux, Greenhill Mills, Hebden Bridge, HX7 5QF, UK
BaseSpion – Type C, horizontal
Ibsen Photonics, Denmark – Freedom VIS (Custom Viso)

Measurement Conditions

Number of C-planes and Resolution
 γ (gamma)-Resolution
Test Distance
Input Power, Power and Displ. Factors
Input RMS Voltage and Current
Frequency of Input Power

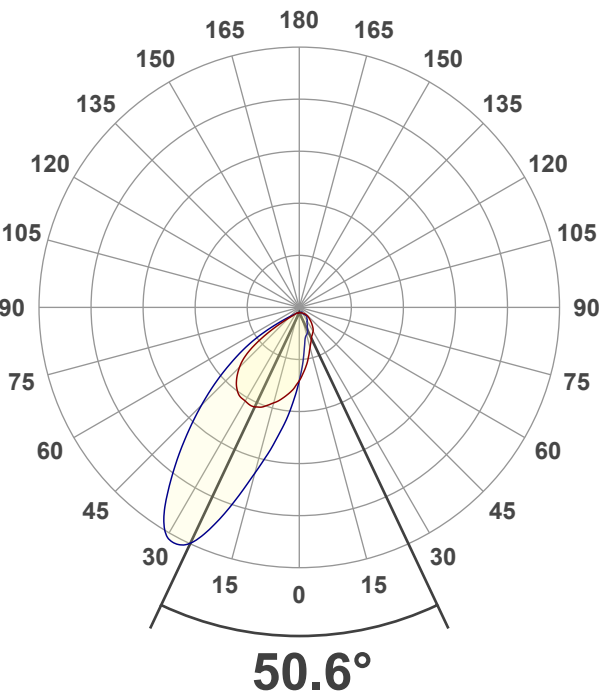
24 planes – 15°
1.5°
1.50 m
16.1 W – PF 0.99 – DPF 0.99
241 V – 0.068 A
50.1 Hz

Main Light Measurement Results

Output
Efficiency
Peak Intensity and Beam Angle
Color Rendering Index

1554 lm
97 lm/W
1673 cd – 50.6°
CRI 91.9

Light Intensity Distribution



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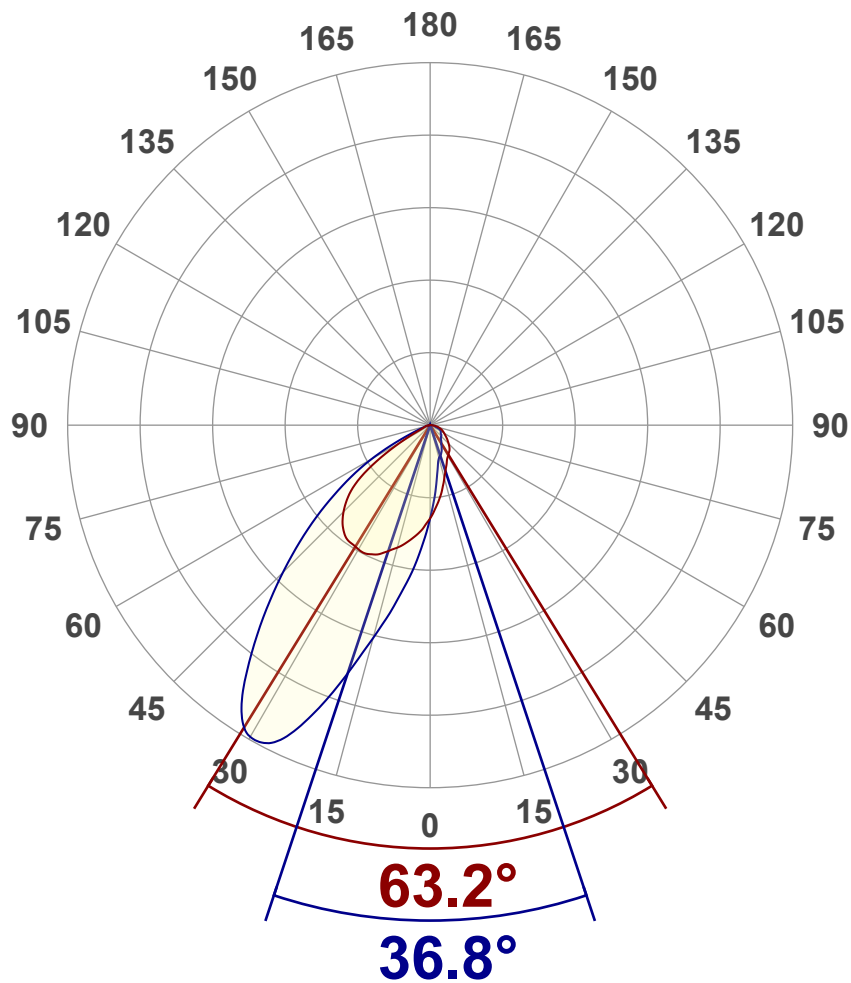
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Luminous Intensity diagram

Unit: 0-100% of peak intensity



Main Values

Output (total Lumen)	1554 lm
Peak Intensity	1673 cd
Beam Angle (50%)	50.6°
Beam Angle (90%)	36.8°
Beam Angle (10%)	80.3°

Cut-off Angle

Average 2,5%	149.6°
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Field Angle

Average 10%	99.5°
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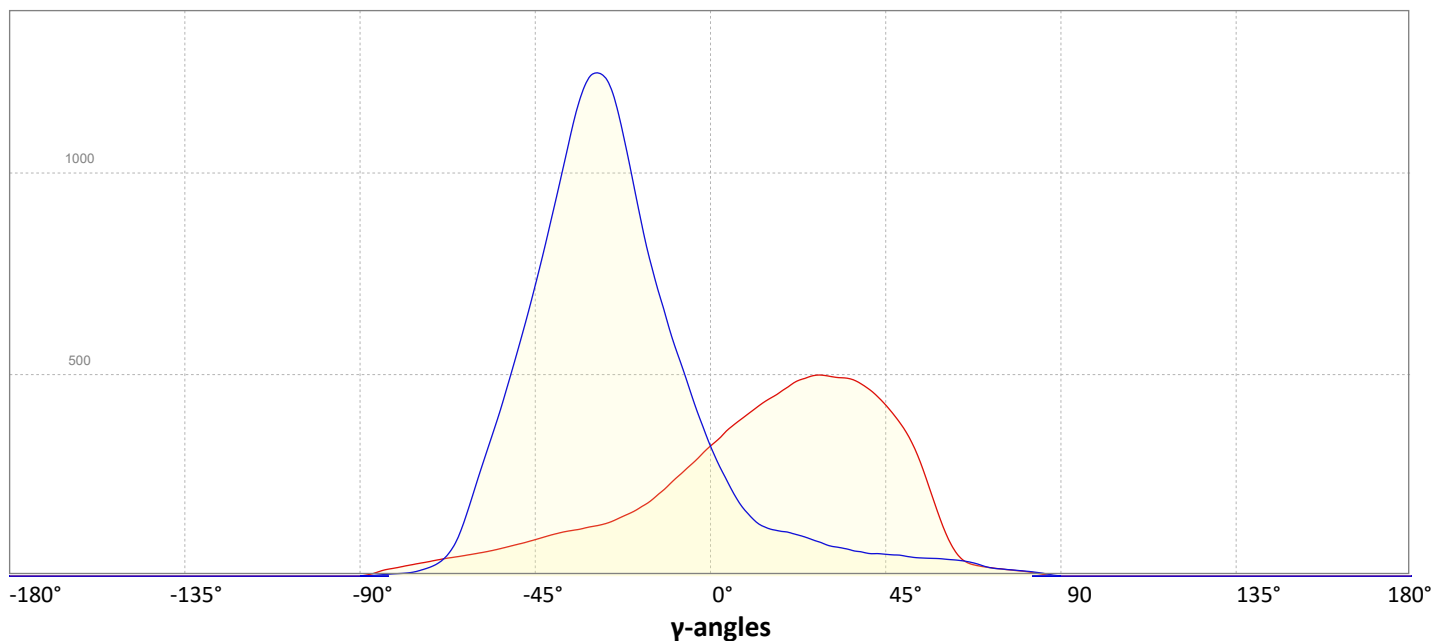
Intensity Ratio

In 120° cone	91.9%
In 90° cone	66.4%

C000-C180

C090-C270

Linear distribution diagram - Intensity (candela) vs γ-angle

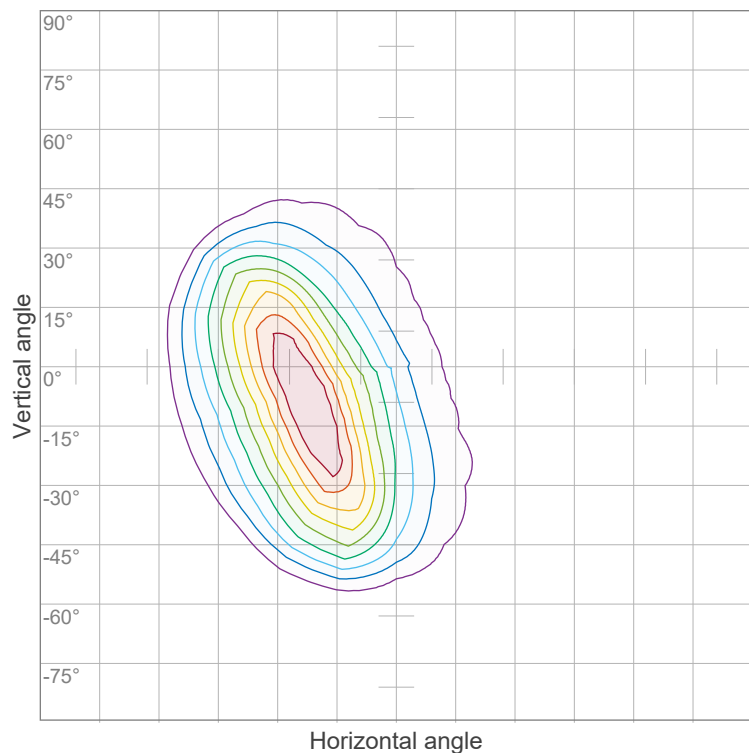


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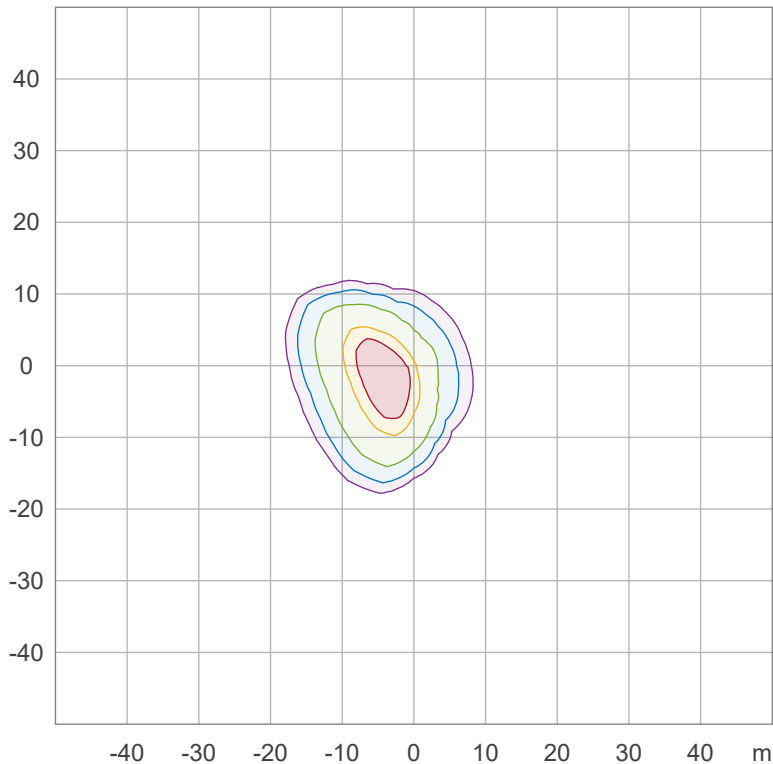


Iso-intensity Diagram (Iso-candela)



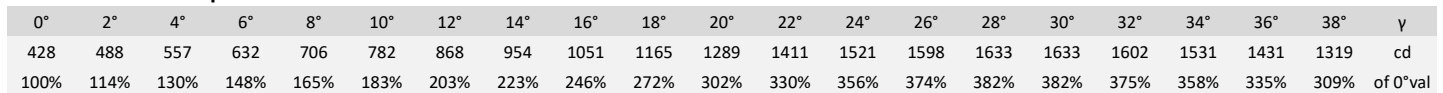
Peak intensity: 1672.0 cd
Number of c-planes: 24

Iso-illuminance Diagram (Iso-lux)

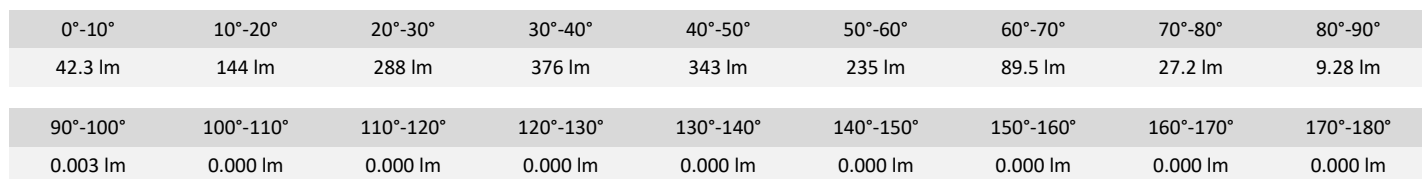
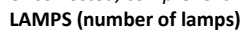


Peak illuminance: 12.5 lx
Mounting height: 10.0 m
Number of c-planes: 24

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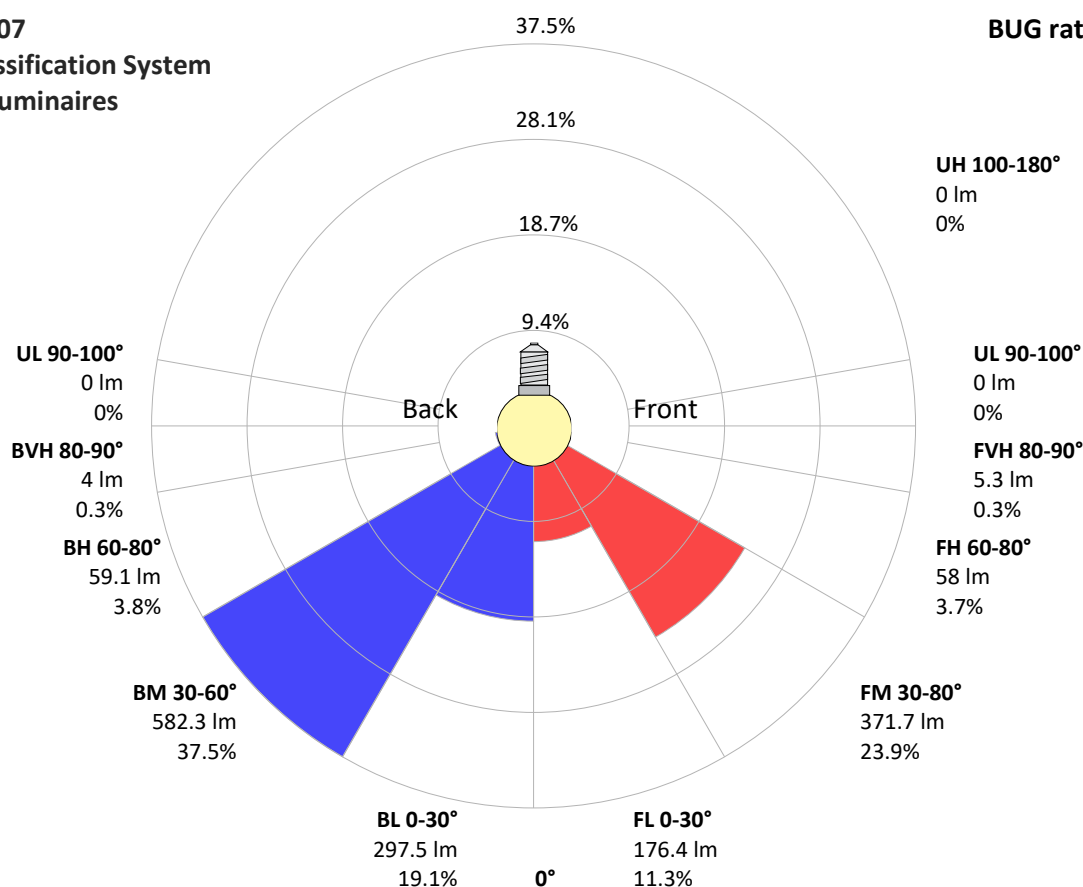


Intensity peaks

Max intensity	1673 cd
Intensity, 90°	1 cd
Intensity, 0°	428 cd

	Lumen	% Total
Forward light		
Low(0-30°)	176 lm	11.3%
Medium(30-60°)	372 lm	23.9%
High(60-80°)	58 lm	3.7%
Very high(80-90°)	5 lm	0.3%
Back light		
Low(0-30°)	298 lm	19.1%
Medium(30-60°)	582 lm	37.5%
High(60-80°)	59 lm	3.8%
Very high(80-90°)	4 lm	0.3%
Uplight		
Low(90-100°)	0 lm	0.0%
High(100-180°)	0 lm	0.0%

BUG rating B1 U1 G0



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Power Details

Input Power

Power feed to light source	16.1 W
Frequency of input power	50.1 Hz
RMS Input voltage feed, V_{RMS}	241 V
RMS Input current feed, I_{RMS}	0.068 A
Volt-Ampere or apparent power = $V_{RMS} \cdot I_{RMS}$	16.29 VA
Displacement factor of AC power feed	0.99
Power factor of AC current feed	0.99
Total harmonic distortion of the current	6.77%
Total harmonic distortion of the voltage	1.16%

Efficiency

Radiated power efficiency	35.6%
<div><div></div></div>	
Lumen efficiency	97 lm/W
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Input Power Curve



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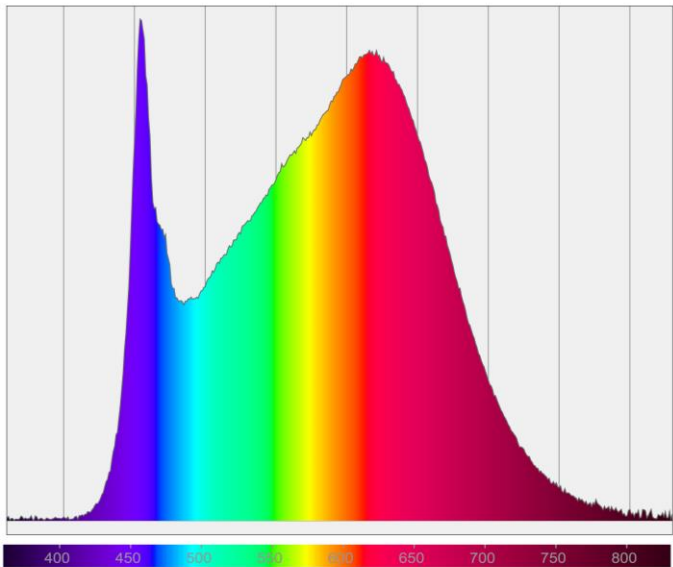
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Color Measurements

Correlated Color Temperature	CCT = 3500 K
Color Rendering TM30-18	R _f 90.2 — R _g 98.1
Color Shift, CIE duv	Duv ±0.0003

Spectral distribution



Color details

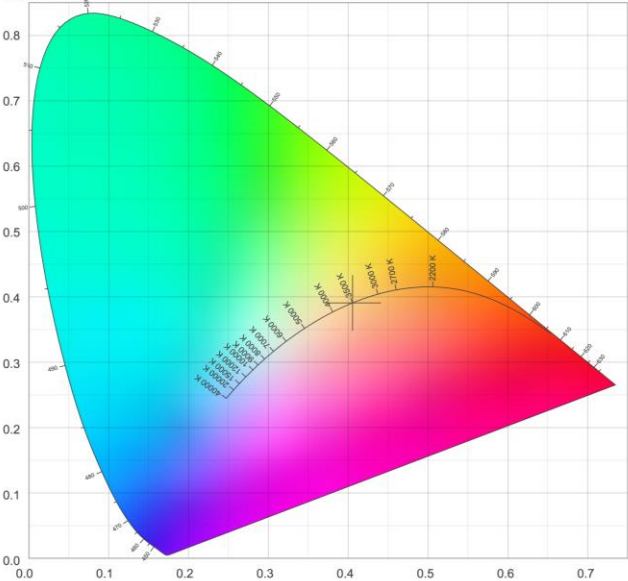
Correlated Color Temperature	CCT = 3500 K	Color coordinates CIE 1931	(x;y) = (0.406;0.391)
Color Rendering Index	CRI 94.0	Color coordinate CIEs 1960	(u;v) = (0.236;0.341)
Color Rendering Index, R9 (red component)	R9 = 77.7	Color deviation from BBL	Duv = ±0.0003
Color Rendering TM30-18	R _f 90.2 — R _g 98.1	Color coordinate CIEs 1976 (CIELUV)	(u';v') = (0.236;0.236)
Color Quality Scale	CQS = 92.3		

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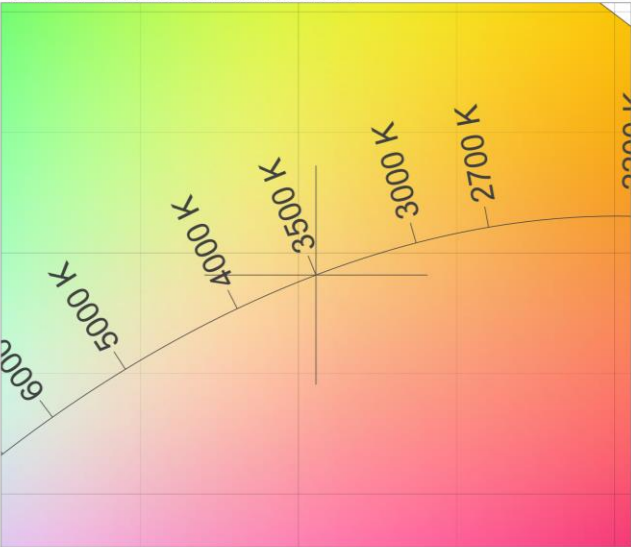
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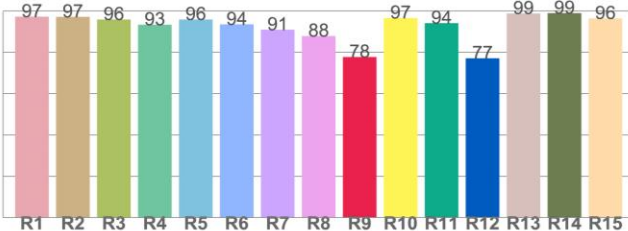
CIE 1931



CIE 1931 – zoomed on Planckian locus



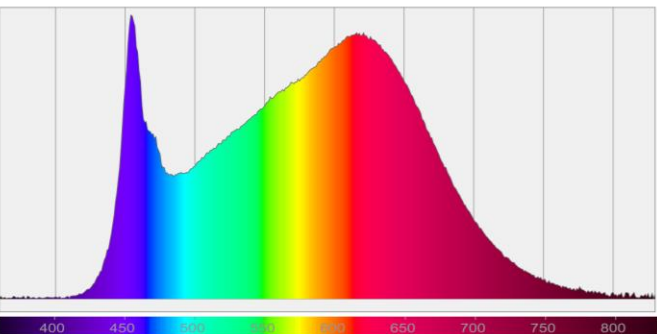
Color Rendering Index per reference color (CIE 1995)



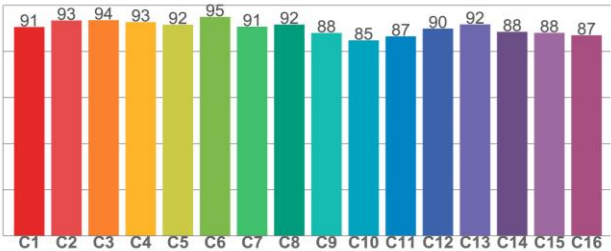
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
97.3	97.2	95.9	93.4	95.9	93.5	90.9	87.9	77.7	96.6	94.1	77.1	98.8	99.0	96.4

Spectral power distribution (SPD) / W/nm – 0-100%



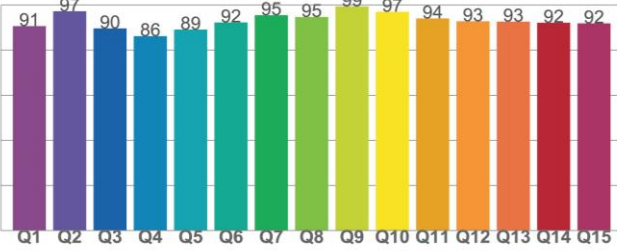
TM30-18 Rf-values per hue bin



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
90.6	93.4	93.6	92.7	91.6	95.0	90.7	91.6	88.0	84.8	86.5	89.9	91.7	88.5	88.1	87.0

Color Quality Scale by reference color



CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
90.6	97.2	89.6	86.2	89.1	92.3	95.5	94.7	99.4	97.0	94.0	92.8	92.6	92.1	91.8