KL Fresnel 4 CW

Photometric Test Report

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Testing Process

Total Lumen Measurements

Lumens are measured using a Viso Systems Lab Spion. As a goniophotometer, the Viso calculates the field lumens of the fixture by taking multiple measurements across the light beam.

Many lumens figures provided for entertainment lighting fixtures are only 2π sphere values, some even emphasize the LED engine lumens. All Elation product photometric data is the actual light output from the fixture lens, never a theoretical value based on calculation or using the source lumens as the fixtures output. We advise to always compare total fixture lumens acquired with identical measurement systems when comparing lighting fixtures.

Test Lab Equipment and Process

Elation operates an optical testing laboratory at its Los Angeles, CA headquarters to provide accurate photometric data for its lighting products. The testing lab is both light and climate-controlled and contains a variety of precise lighting measurement systems. Fixtures are analyzed with the sophisticated Viso Systems Lab Spion equipment, which measures all light and color parameters by panning the light beam at a precise speed and from different angles through a calibrated, laser aligned light and color sensor. Test data is collected and summarized by the Viso Light Inspector software. This type of measurement system is referred to as a Goniophotometer.

The Viso software calculates all relevant types of measurements, from beam angles, candela to center light intensity at a variety of distances to the latest color quality measurements like TM30 or CQS as well as accurate color temperature. This wealth of data is then processed by an Elation specific template which is included in the photometric test report for various fixture conditions such as zoom angles and color correction filters.

The Viso software also creates IES (Illuminating Engineering Society) files for each test report. IES is an industry standard file format created for the easy electronic transfer of photometric test data, which is widely used by lighting manufacturers for photometric data distribution.

Additionally, fixtures are periodically rechecked for accuracy using various hand-held light meters including one or more of the devices listed below. This is done to ensure the test data contained in this report is as accurate as possible.

Asenstek Lighting Passport | Konica Minolta T-10 | Sekonic C700T

KL Fresnel 4 CW (Zoom In)

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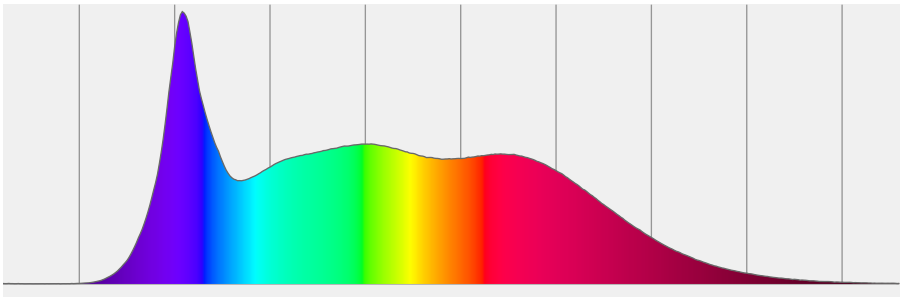
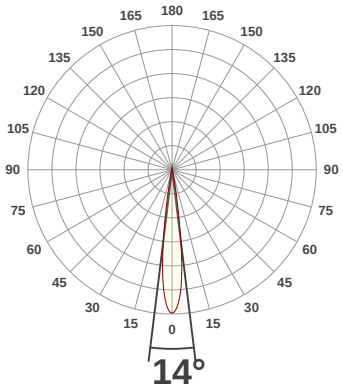
Total Lumen Output: 2068 lm
Color Temperature: 5841 K
CRI: 96.7
TLCI: 97
TM30: 91.8
CQS: 93.1
Measurement Date: 6/12/2018

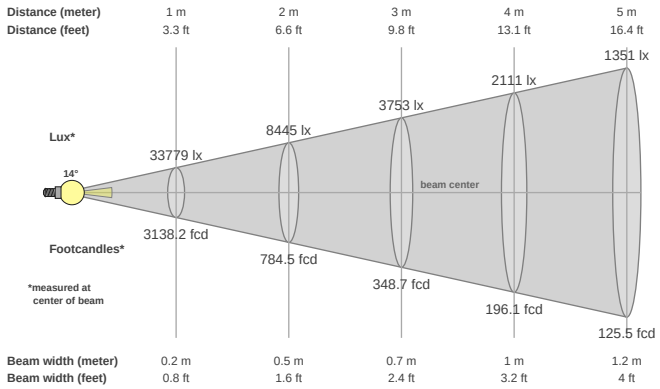
Voltage: 113 V, Current: 0.687 A
Power: 49.1 W
Efficacy: 42 Lumen/Watt

Spectral distribution
Dominant Wavelength 598





Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
14°	22.1°	29.4°

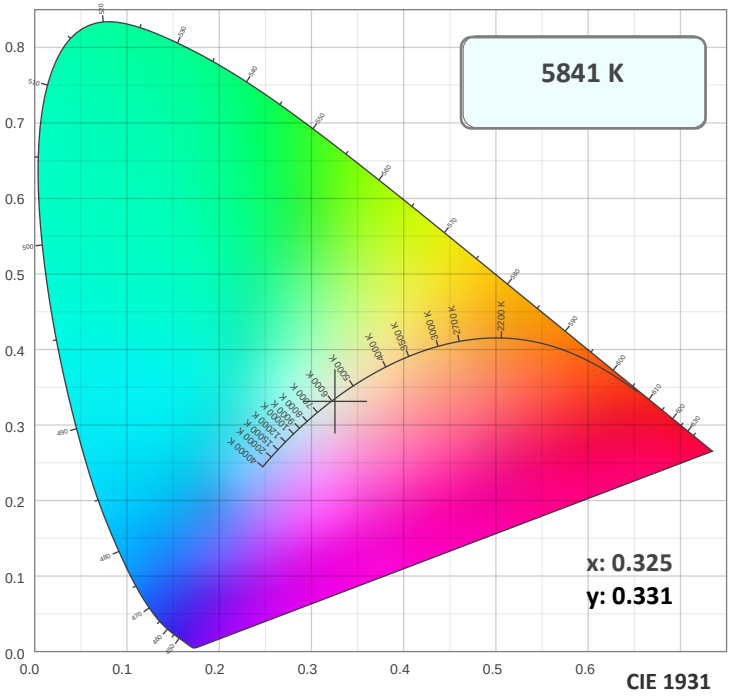
Beam intensities

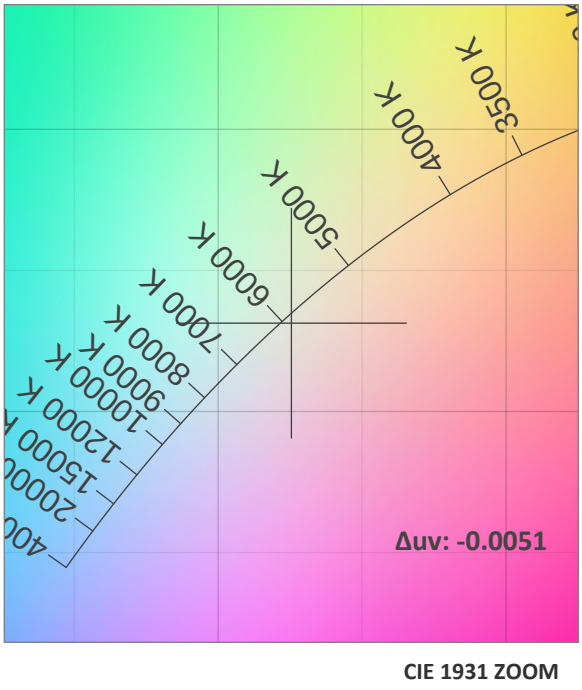
Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
33799 cd	100.0%	100.0%

Beam Intensities from 1-20m

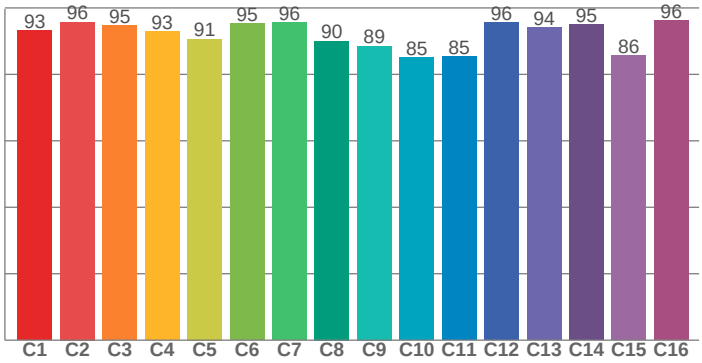
M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FT	3.3	6.6	9.8	13.1	16.4	19.7	23	26.2	29.5	32.8	36.1	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3	65.6
LX	33779	8445	3753	2111	1351	938	689	528	417	338	279	235	200	172	150	132	117	104	94	84
FC	3138.2	784.5	348.7	196.1	125.5	87.2	64	49	38.7	31.4	25.9	21.8	18.6	16	13.9	12.3	10.9	9.7	8.7	7.8

Color Details

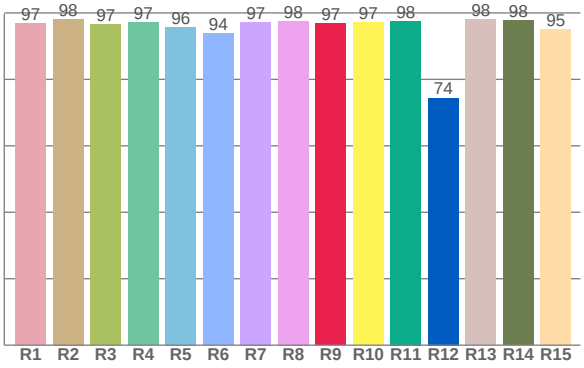




TM30: 91.8



CRI: 96.7 (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
96.9	98.2	96.5	97.1	95.8	93.8	97.3	97.6	96.7	97.2	97.6	74.4	98.0	97.8	95.2

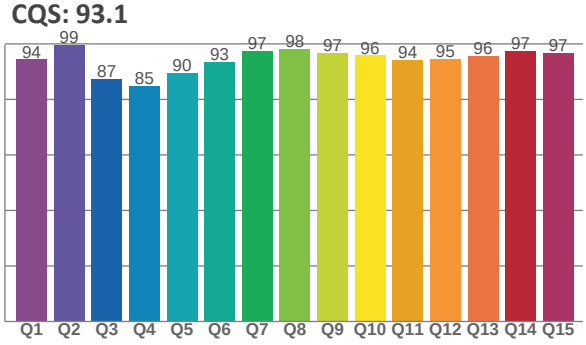
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93.1	95.7	94.7	92.9	90.7	95.4	95.5	90.0	88.5	85.1	85.3	95.6	94.0	95.0	85.7	96.1

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
94.4	99.5	87.5	84.7	89.6	93.4	97.4	98.2	96.9	95.8	94.1	94.7	95.8	97.5	96.6

CQS: 93.1



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 Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5841 K	96.7	96.7	91.8	99.8	93.1	0.325	0.331	0.206	0.314	-0.0051

Prepared For ELATION PROFESSIONAL

TM30 Details

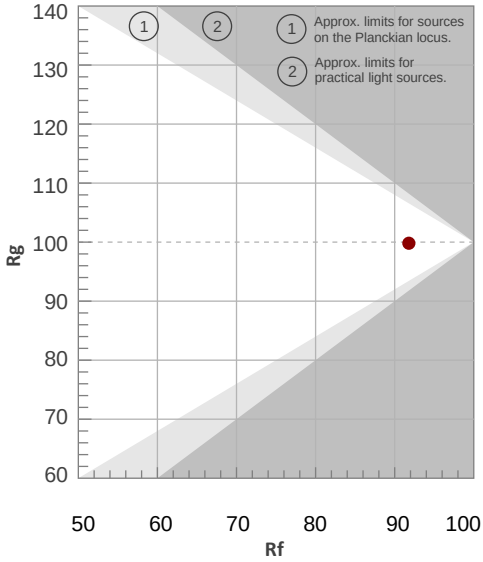
Rf 91.8

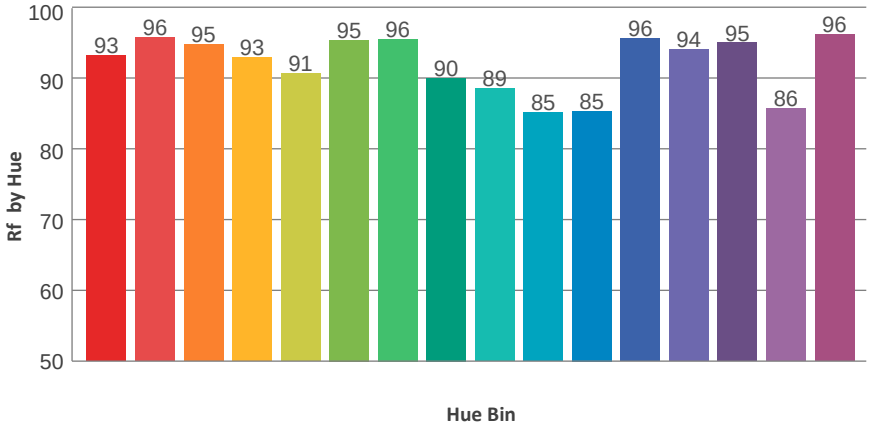
Fidelity Index Rf

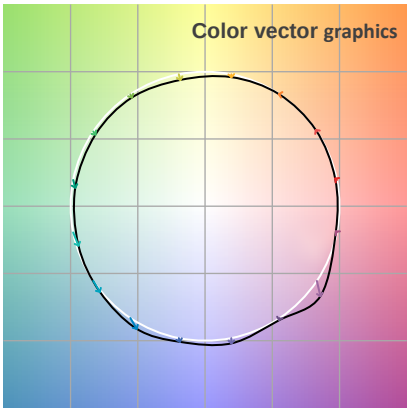
Rg 99.8

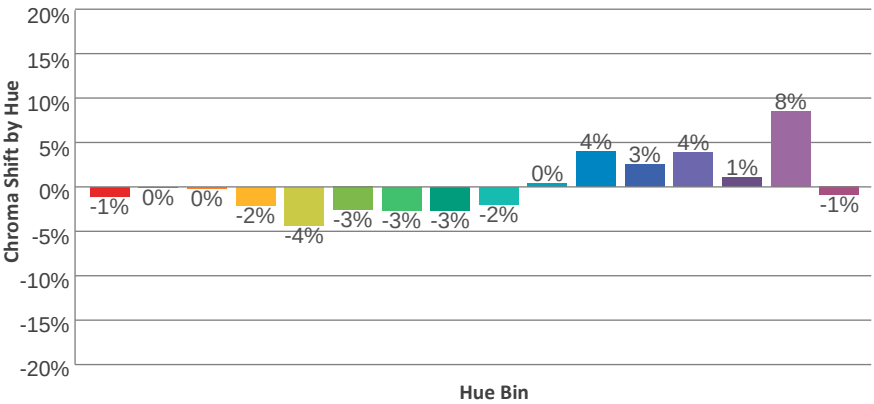
Gamut Index Rg

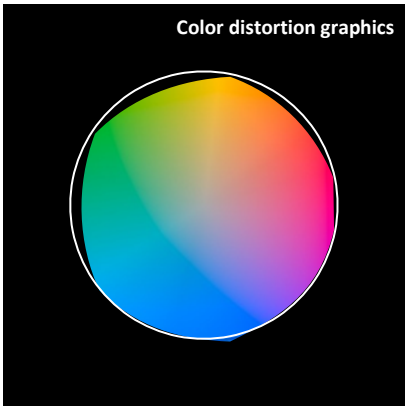
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	93	-1%	1%
2	96	0%	1%
3	95	0%	1%
4	93	-2%	-1%
5	91	-4%	0%
6	95	-3%	0%
7	96	-3%	1%
8	90	-3%	5%
9	89	-2%	10%
10	85	0%	9%
11	85	4%	8%
12	96	3%	1%
13	94	4%	-1%
14	95	1%	-1%
15	86	8%	-8%
16	96	-1%	1%

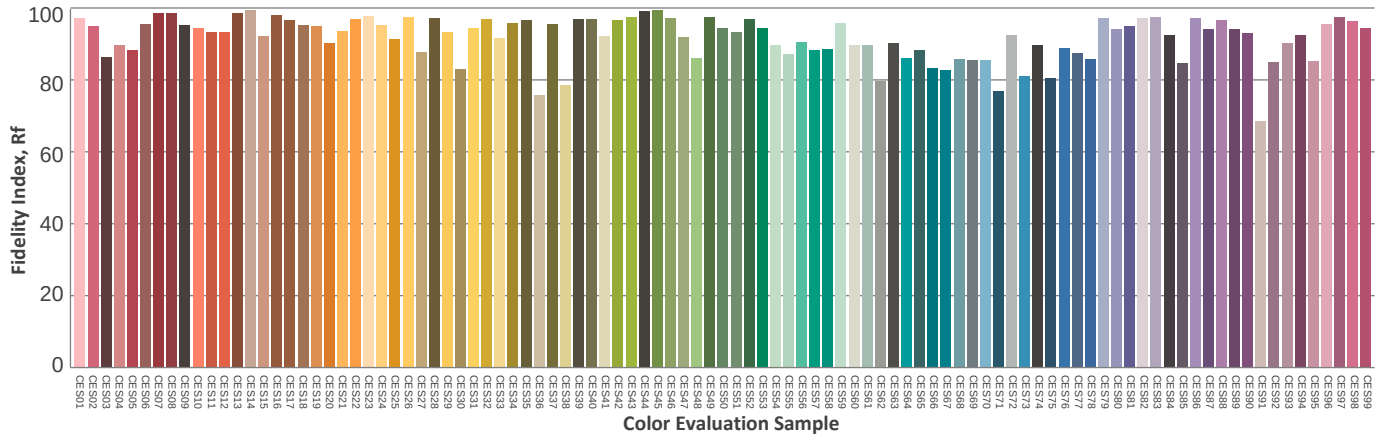












KL Fresnel 4 CW (Zoom Out)

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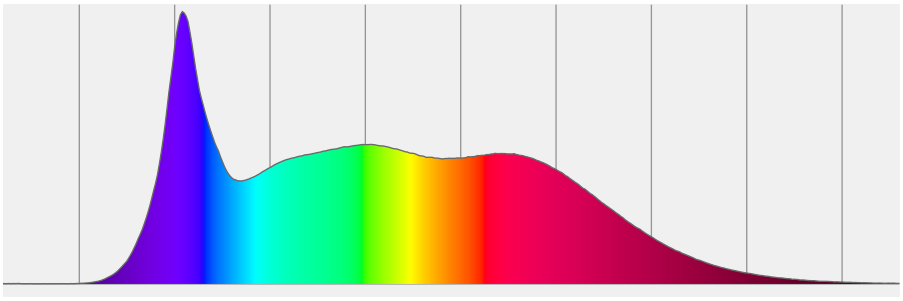
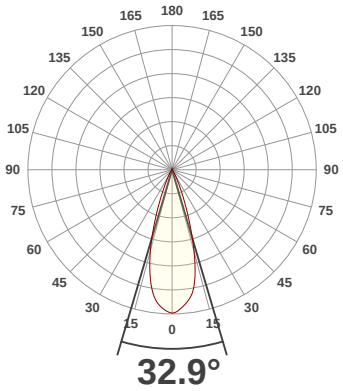
Total Lumen Output: 2358 lm
Color Temperature: 5812 K
CRI: 96.6
TLCI: 97
TM30: 91.8
CQS: 93.1
Measurement Date: 6/12/2018

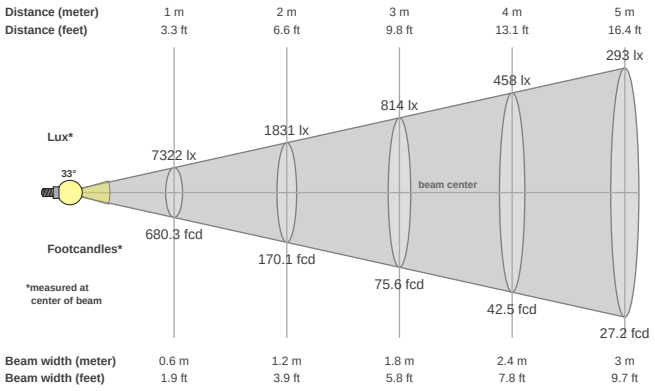
Voltage: 114 V, Current: 0.686 A
Power: 49.1 W
Efficacy: 48 Lumen/Watt

Spectral distribution
Dominant Wavelength 599





Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
32.9°	51.7°	67.4°

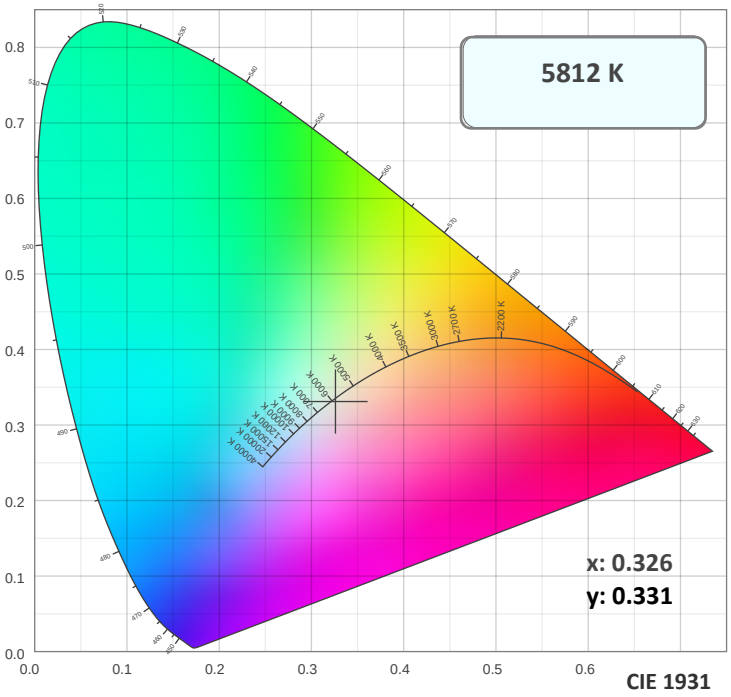
Beam intensities

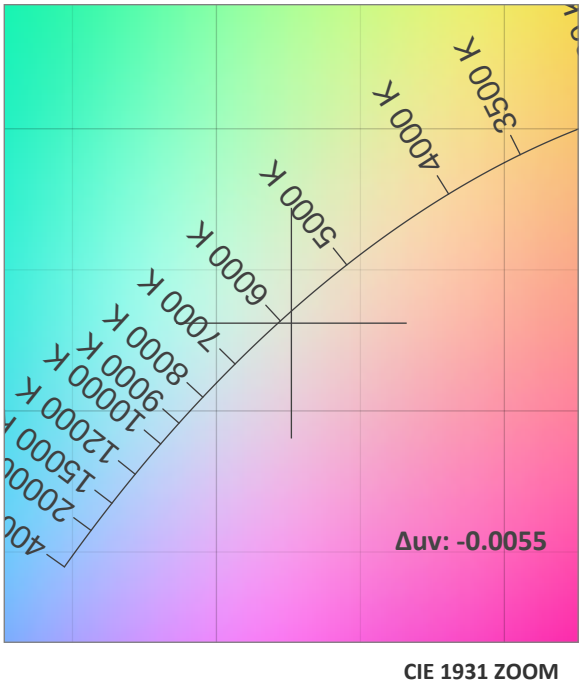
Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
7323 cd	99.8%	99.2%

Beam Intensities from 1-20m

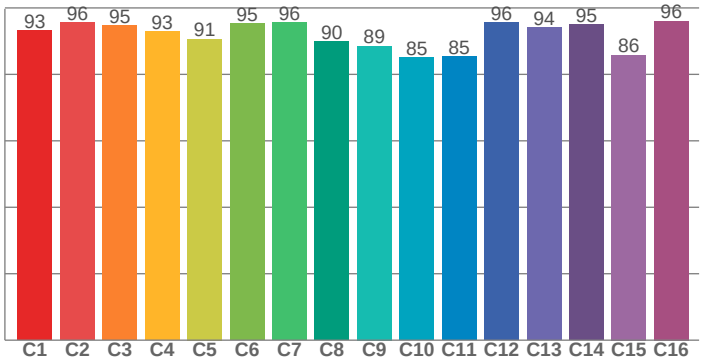
M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FT	3.3	6.6	9.8	13.1	16.4	19.7	23	26.2	29.5	32.8	36.1	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3	65.6
LX	7322	1831	814	458	293	203	149	114	90	73	61	51	43	37	33	29	25	23	20	18
FC	680.3	170.1	75.6	42.5	27.2	18.9	13.9	10.6	8.4	6.8	5.6	4.7	4	3.5	3	2.7	2.4	2.1	1.9	1.7

Color Details

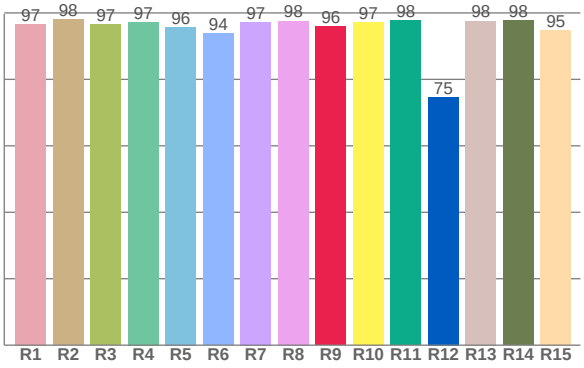




TM30: 91.8



CRI: 96.6 (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
96.7	98.0	96.6	97.3	95.7	93.8	97.3	97.6	95.9	97.3	97.7	74.7	97.6	97.8	94.9

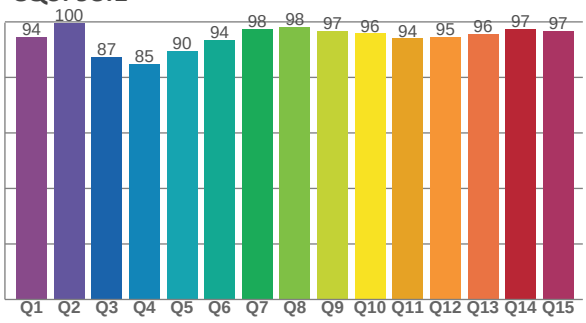
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93.1	95.6	94.7	92.9	90.7	95.4	95.6	90.0	88.6	85.2	85.4	95.6	94.1	95.0	85.8	96.1

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
94.5	99.5	87.4	84.8	89.7	93.6	97.5	98.3	96.8	95.8	94.1	94.6	95.6	97.4	96.7

CQS: 93.1



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 Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5812 K	96.6	95.9	91.8	99.9	93.1	0.326	0.331	0.206	0.314	-0.0055

Prepared For ELATION PROFESSIONAL

TM30 Details

Rf 91.8

Fidelity Index Rf

Rg 99.9

Gamut Index Rg

		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	93	-1%	1%
2	96	0%	1%
3	95	0%	1%
4	93	-2%	-1%
5	91	-4%	0%
6	95	-3%	0%
7	96	-3%	1%
8	90	-3%	5%
9	89	-2%	10%
10	85	0%	9%
11	85	4%	8%
12	96	3%	1%
13	94	4%	-1%
14	95	1%	-1%
15	86	9%	-8%
16	96	-1%	1%