PROTEUS EXCALIBUR

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

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Photometric Report

Total Lumen Output*

VISO Lab Spion **18598 lm**

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%
0.8°	1.6°	2°

Color Temperature: 7098 K

CRI: 77.2

TLCI: 52

TM30: 79.9

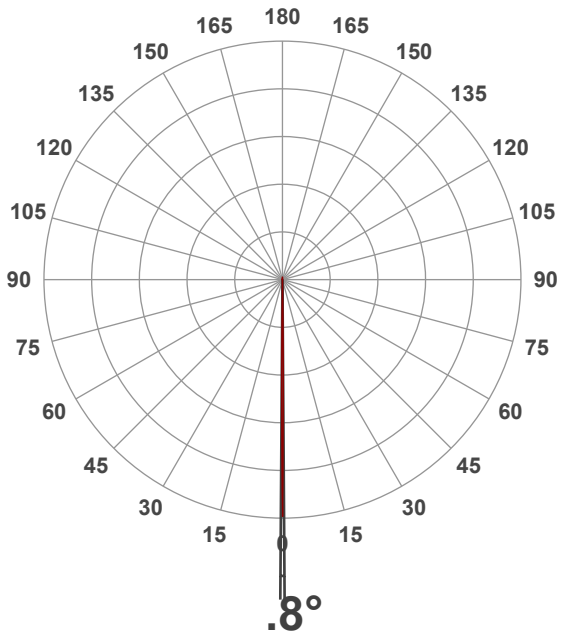
CQS: 73.5

Voltage: 117 V, Current: 6.57 A

Power: 766 W

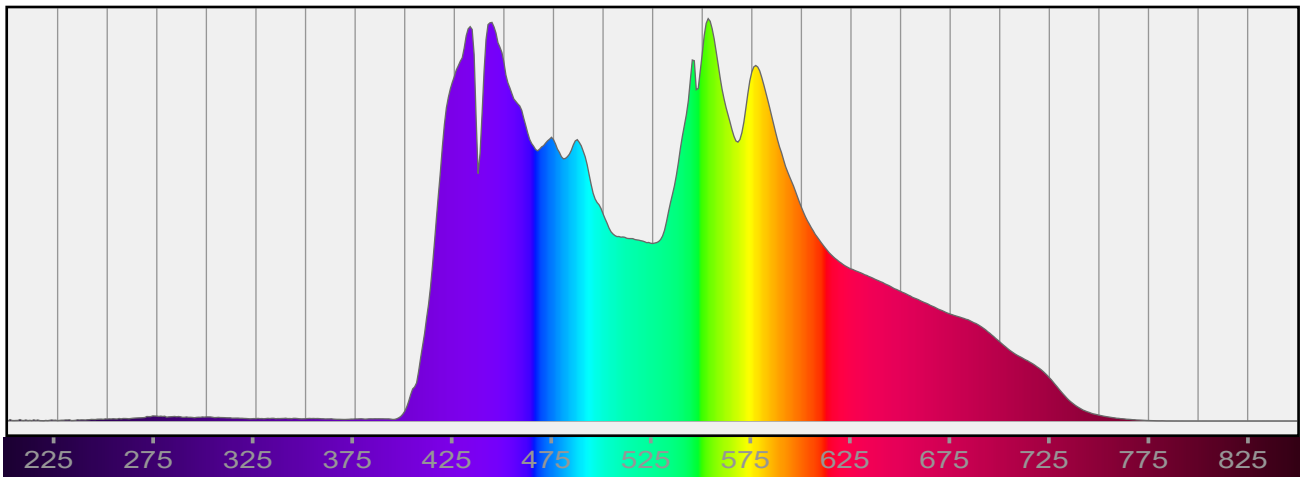
Efficacy: 24 Lumen/Watt

Measurement Date: 11/16/2021



Spectral Distribution

Dominant Wavelength 468 nm



*Total Lumen measurements by calibrated Everfine 2π Integrating Sphere and Viso Systems Lab Spion

Proteus Excalibur (Beam)

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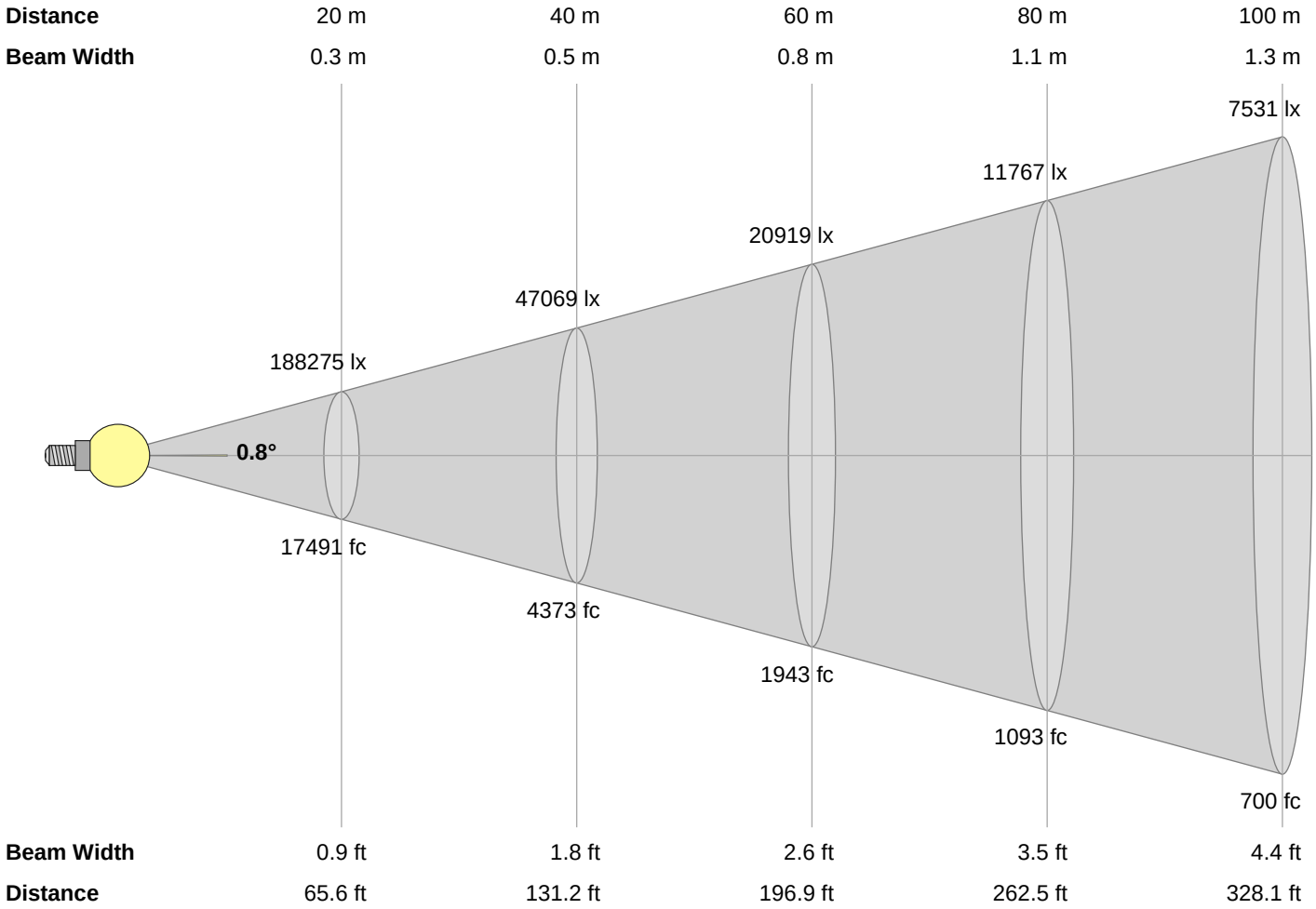
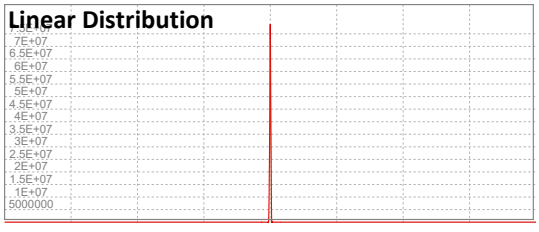
Beam Details

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2,5%
0.8°	**1.6°**	**2°**



Beam intensities from 1 – 100 m

M	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
FT	16,4	32,8	49,2	65,6	82,0	98,4	114,8	131,2	147,6	164,0	180,4	196,9	213,3	229,7	246,1	262,5	278,9	295,3	311,7	328,1
LX	3012402	753101	334711	188275	120496	83678	61478	47069	37190	30124	24896	20919	17825	15369	13388	11767	10424	9298	8345	7531
FC	279861	69965	31096	17491	11194	7774	5711	4373	3455	2799	2313	1943	1656	1428	1244	1093	968	864	775	700



Peak Candela

78760747 cd

Calculate Center Beam Intensities

lux = 78760747 / distance(m)^2

fc = 78760747 / distance(ft)^2

Proteus Excalibur (Beam)

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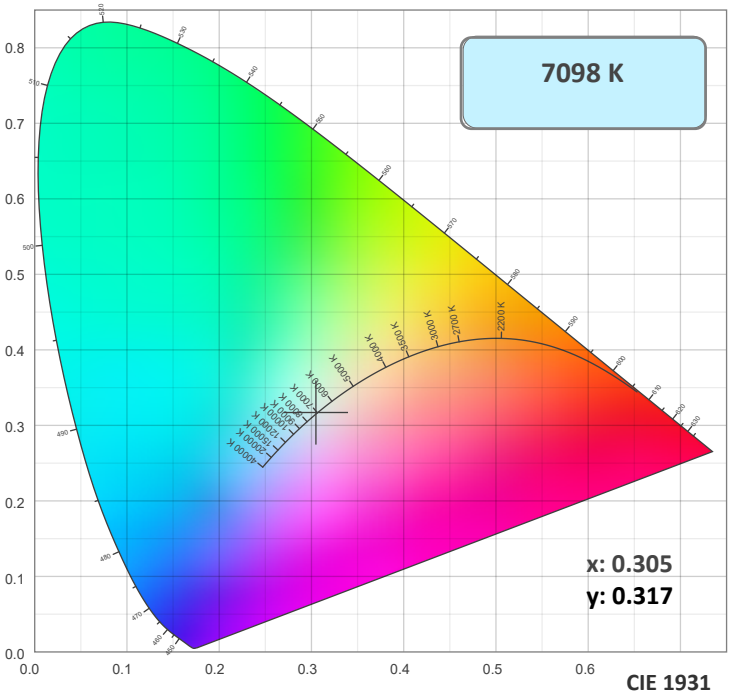
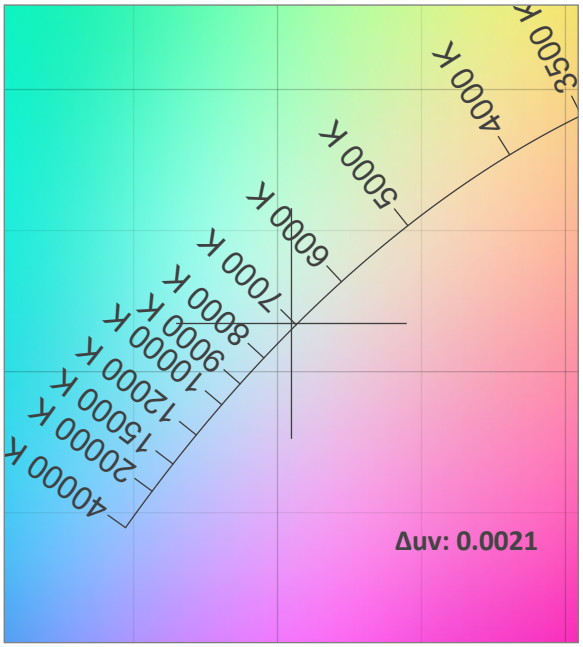
Color Details

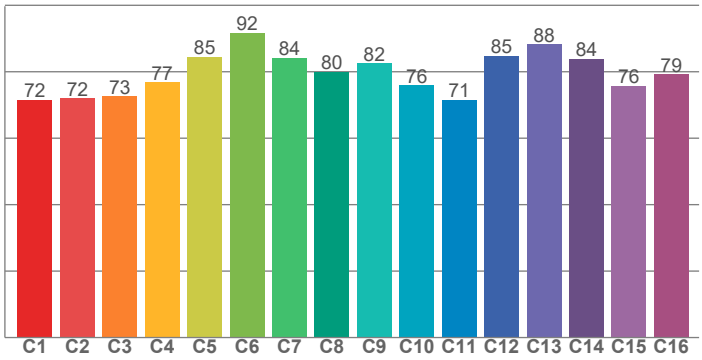


CIE 1931

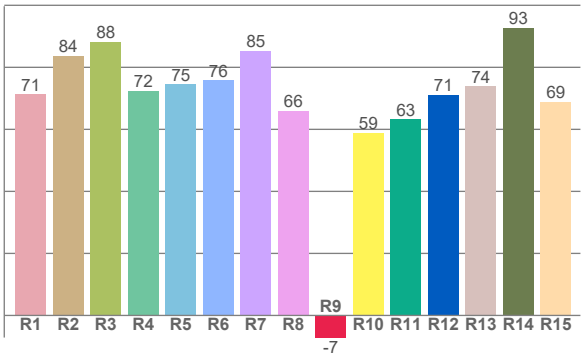


CIE 1931 ZOOM

TM30: 79.9



CRI: 77.2 (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
71.3	83.8	88.3	72.5	74.6	75.9	85.4	66.0	-7.1	58.9	63.2	71.2	74.0	92.7	68.9

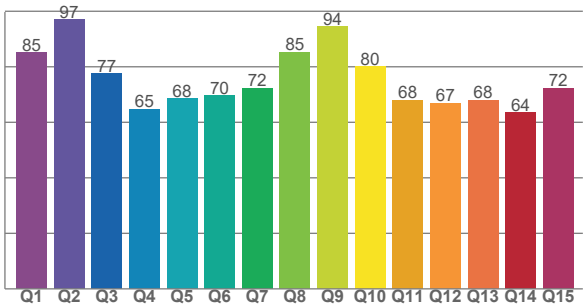
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
71.6	72.0	72.6	76.8	84.5	91.7	84.3	80.0	82.5	76.0	71.5	84.7	88.2	84.0	75.7	79.2

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
85.0	96.9	77.5	64.7	68.5	69.7	72.3	85.3	94.4	80.0	67.9	66.9	68.0	63.6	72.2

CQS: 73.5



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 Deviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
7098 K	77.2	-7.1	79.9	91.3	73.5	0.305	0.317	0.197	0.307	0.0021

Proteus Excalibur (Beam)

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TM30 Details

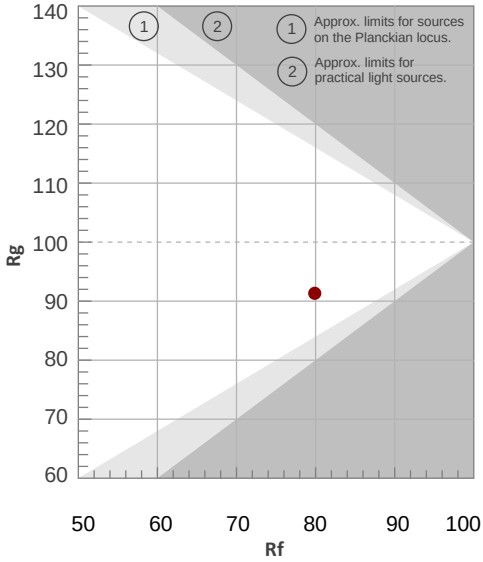
Rf 79.9

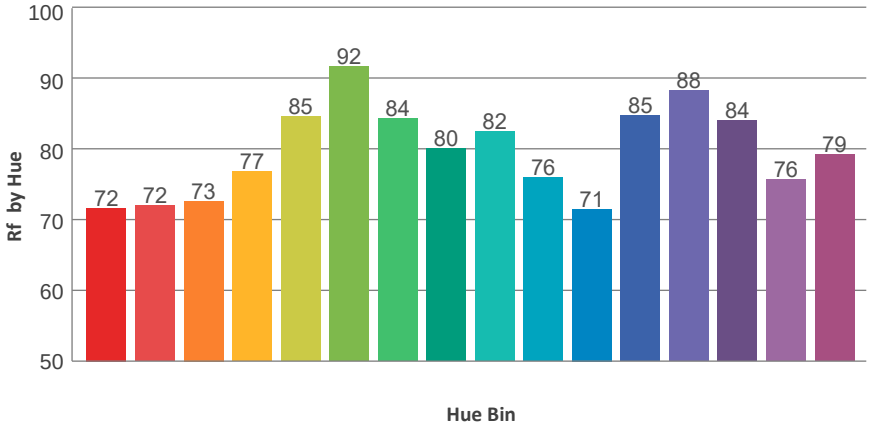
Fidelity Index Rf

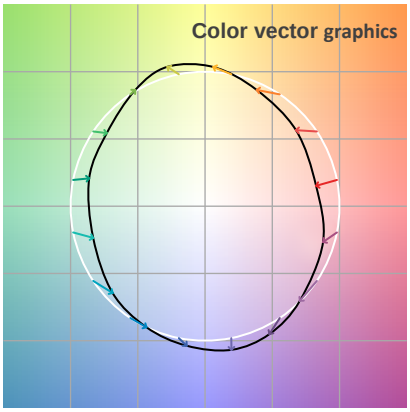
Rg 91.3

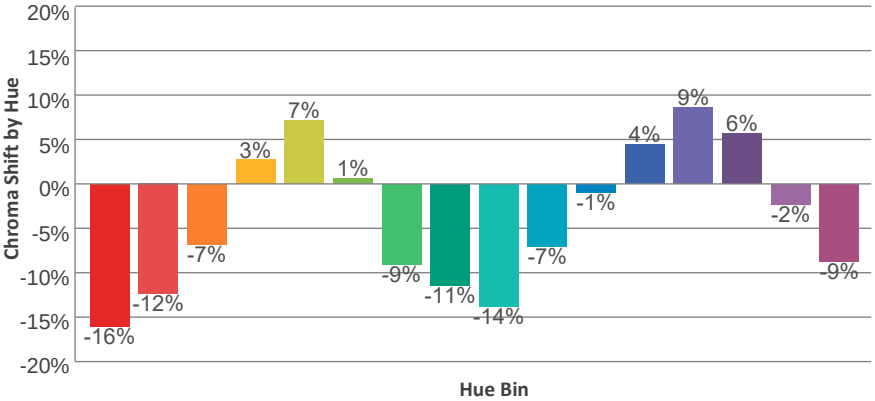
Gamut Index Rg

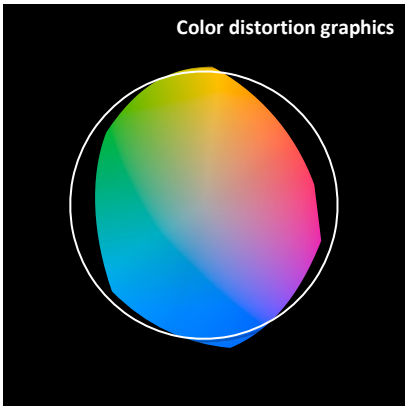
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	72	-16%	-1%
2	72	-12%	9%
3	73	-7%	16%
4	77	3%	14%
5	85	7%	7%
6	92	1%	-5%
7	84	-9%	-5%
8	80	-11%	-3%
9	82	-14%	7%
10	76	-7%	15%
11	71	-1%	14%
12	85	4%	7%
13	88	9%	-2%
14	84	6%	-13%
15	76	-2%	-19%
16	79	-9%	-9%

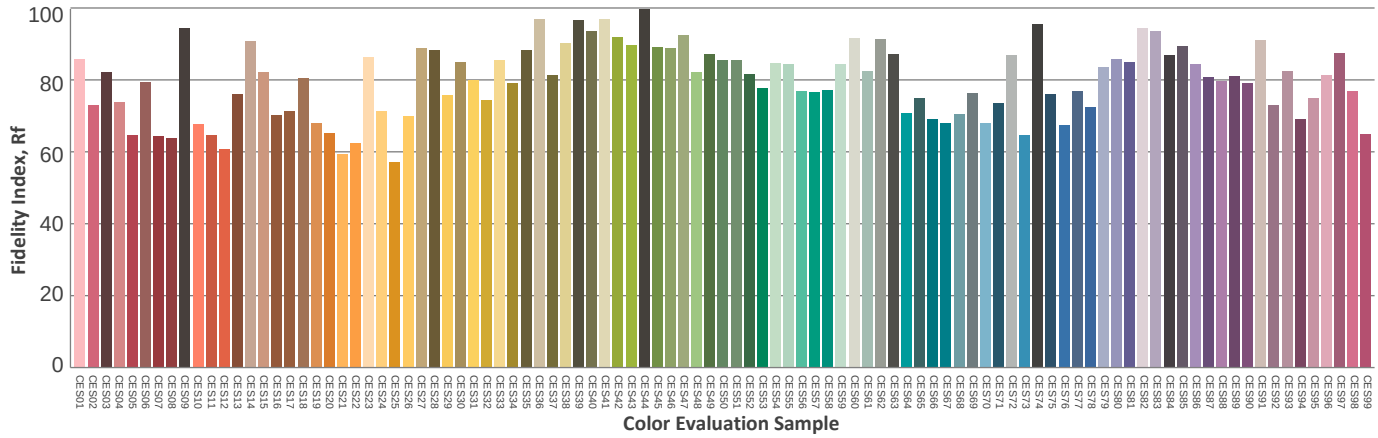












Proteus Excalibur (Beam)

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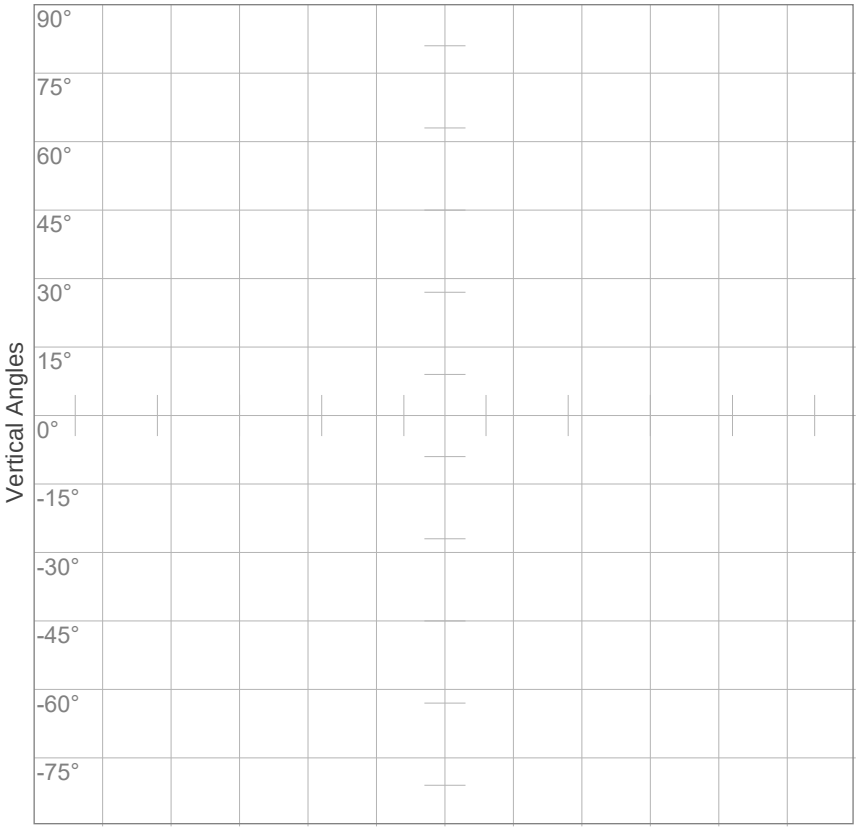
ISO Diagrams

ISO Candela Diagram



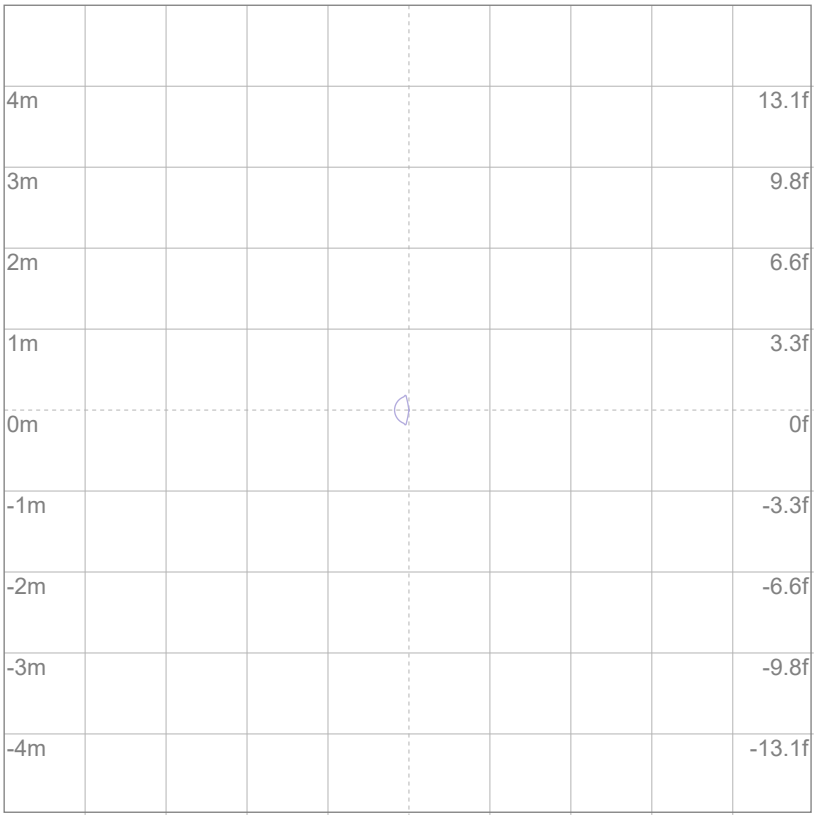
10%	7531005 cd
20%	15062011 cd
30%	22593016 cd
40%	30124021 cd
50%	37655027 cd
60%	45186032 cd
70%	52717037 cd
80%	60248042 cd
90%	67779048 cd

Conditions:

Number of c-planes: 2

Candela at center: 75310053 cd

ISO Lux Diagram



Mounting Height: 10 meters (33 feet)

3%	22.6K lx
5%	37.7K lx
10%	75.3K lx
30%	226K lx
50%	377K lx

Conditions:

Number of c-planes: 2

Lux at center: 753K lx

Lux distribution on a surface when lamp is mounted at 10 meters from the surface.

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Photometric Report

Total Lumen Output*

VISO Lab Spion **18687 lm**

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%
1.6°	2.9°	3.5°

Color Temperature: 6754 K

CRI: 77.3

TLCI: 54

TM30: 80.4

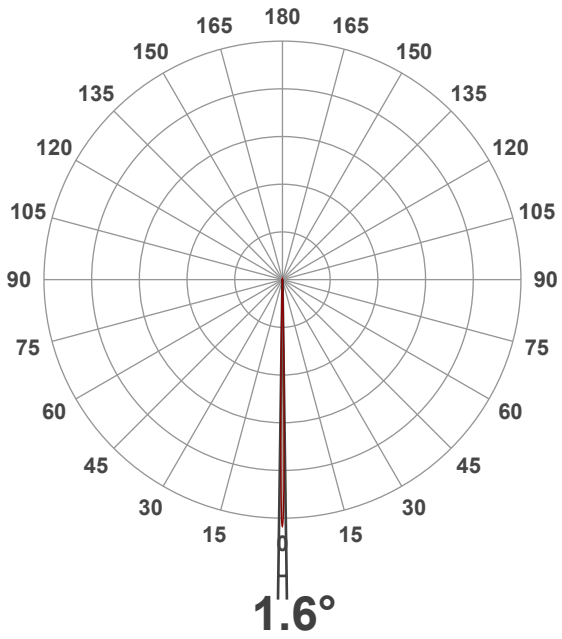
CQS: 73.9

Voltage: 113 V, Current: 6.89 A

Power: 779 W

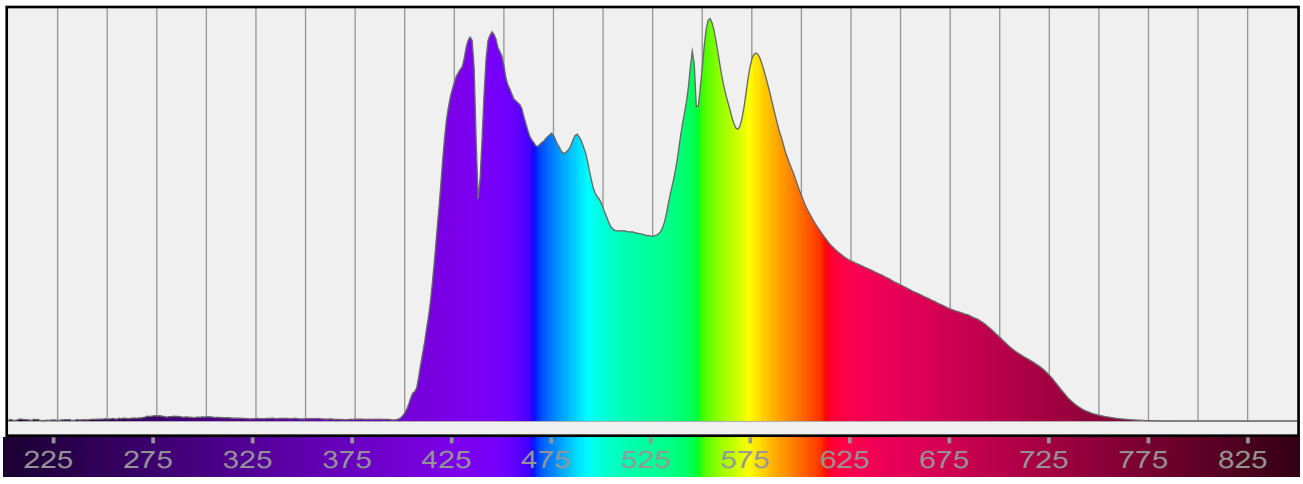
Efficacy: 24 Lumen/Watt

Measurement Date: 11/17/2021



Spectral Distribution

Dominant Wavelength 455 nm



*Total Lumen measurements by calibrated Everfine 2π Integrating Sphere and Viso Systems Lab Spion

Proteus Excalibur (Wash Frost)

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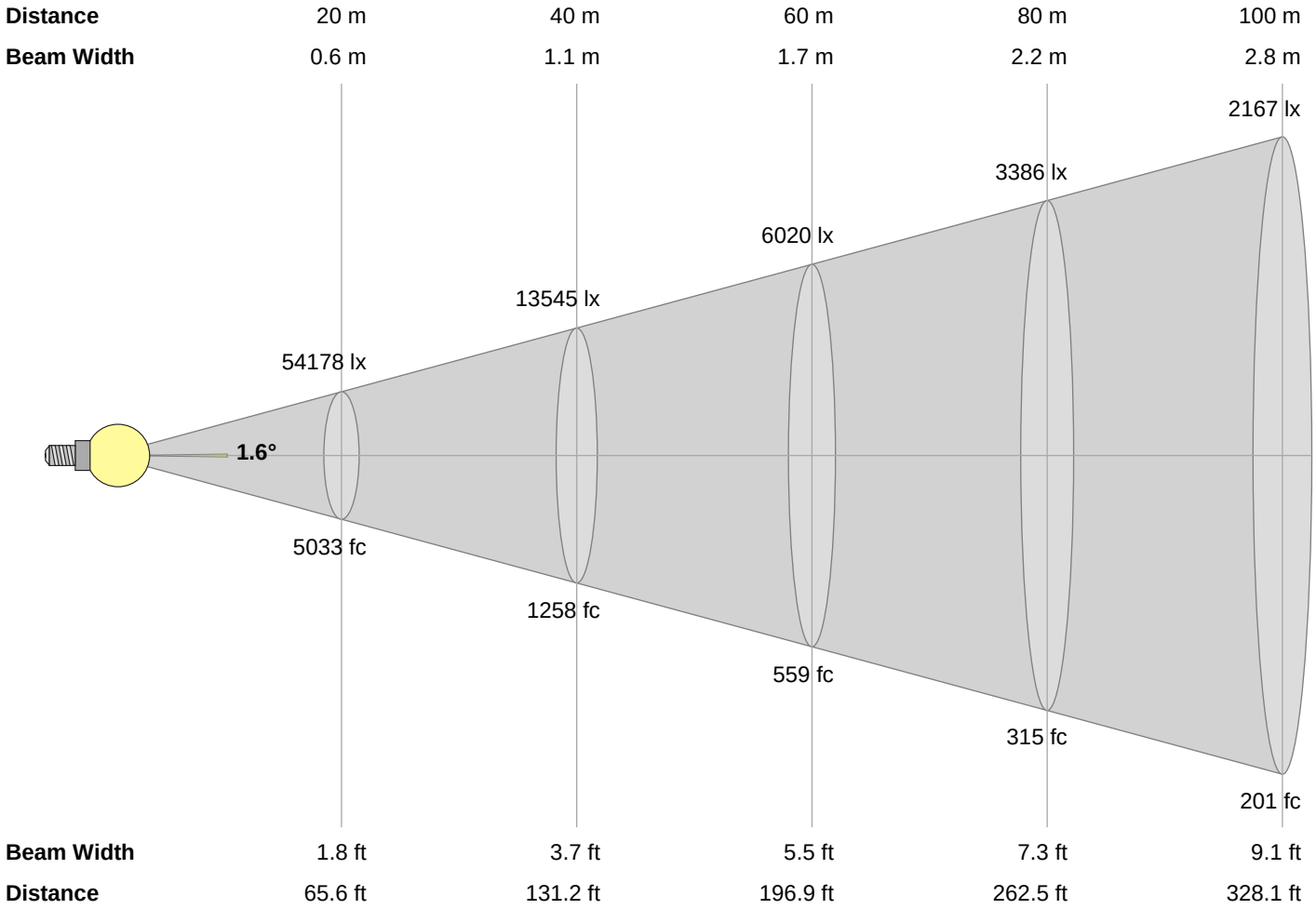
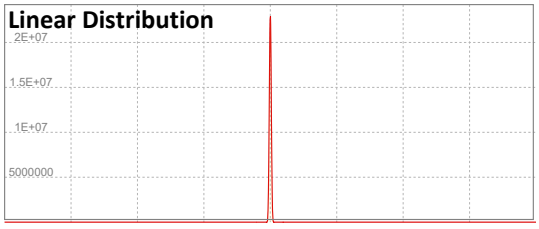
Beam Details

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2,5%
1.6°	**2.9°**	**3.5°**



Beam intensities from 1 – 100 m

M	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
FT	16,4	32,8	49,2	65,6	82,0	98,4	114,8	131,2	147,6	164,0	180,4	196,9	213,3	229,7	246,1	262,5	278,9	295,3	311,7	328,1
LX	866856	216714	96317	54178	34674	24079	17691	13545	10702	8669	7164	6020	5129	4423	3853	3386	3000	2675	2401	2167
FC	80534	20133	8948	5033	3221	2237	1644	1258	994	805	666	559	477	411	358	315	279	249	223	201



Peak Candela

22013258 cd

Calculate Center Beam Intensities

lux = 22013258 / distance(m)^2

fc = 22013258 / distance(ft)^2

Proteus Excalibur (Wash Frost)

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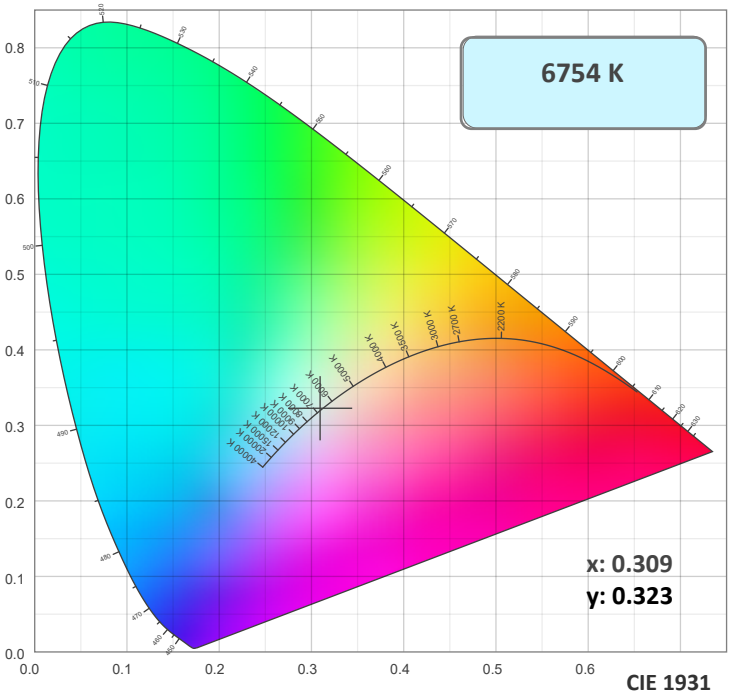
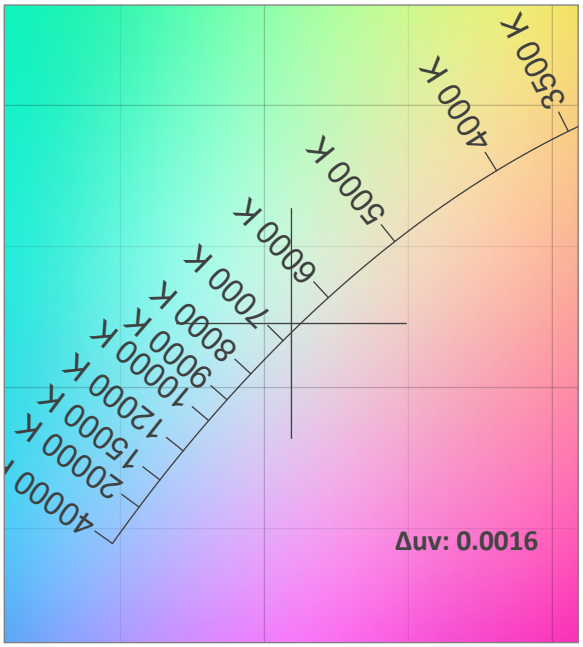
Color Details

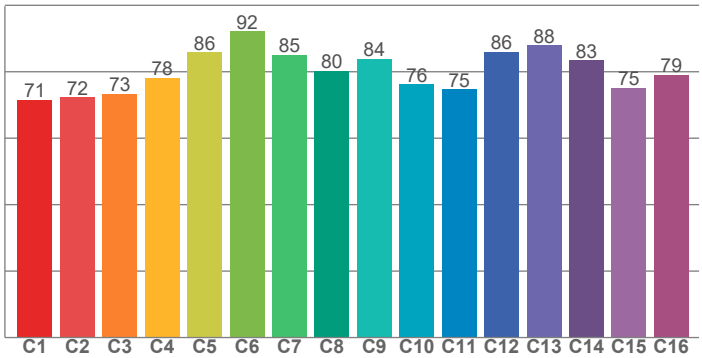


CIE 1931

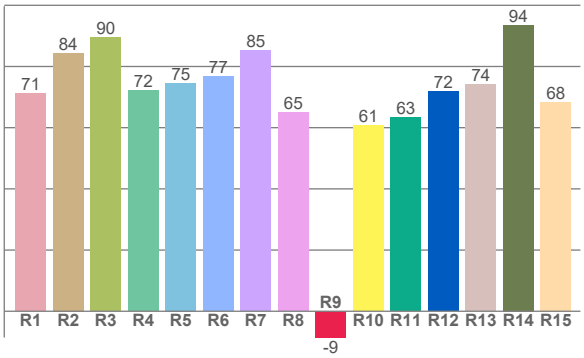


CIE 1931 ZOOM

TM30: 80.4



CRI: 77.3 (R1-R8)



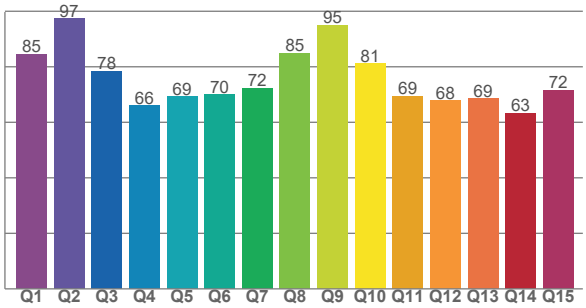
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
71.2	84.4	89.6	72.1	74.5	76.8	85.3	64.9	-8.6	60.8	63.3	71.9	74.2	93.5	68.4

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
71.5	72.3	73.4	78.2	85.8	92.2	85.0	80.2	83.9	76.2	74.7	86.1	88.0	83.5	75.1	79.1

CQS: 73.9



CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
84.5	97.4	78.4	66.0	69.2	70.0	72.2	85.0	95.0	81.1	69.3	67.9	68.5	63.2	71.6

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 Deviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
6754 K	77.3	-8.6	80.4	91.4	73.9	0.309	0.323	0.198	0.310	0.0016

Proteus Excalibur (Wash Frost)

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TM30 Details

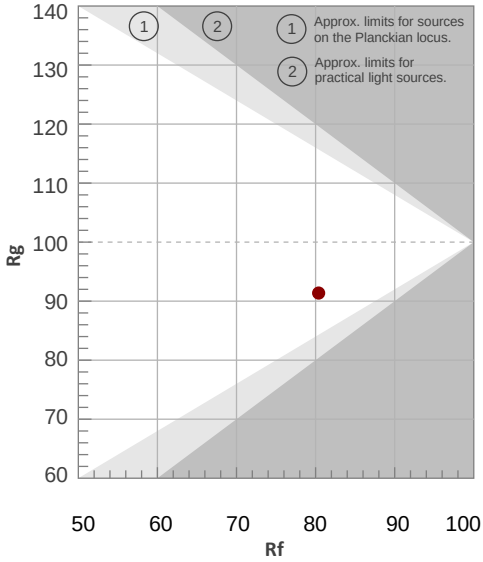
Rf 80.4

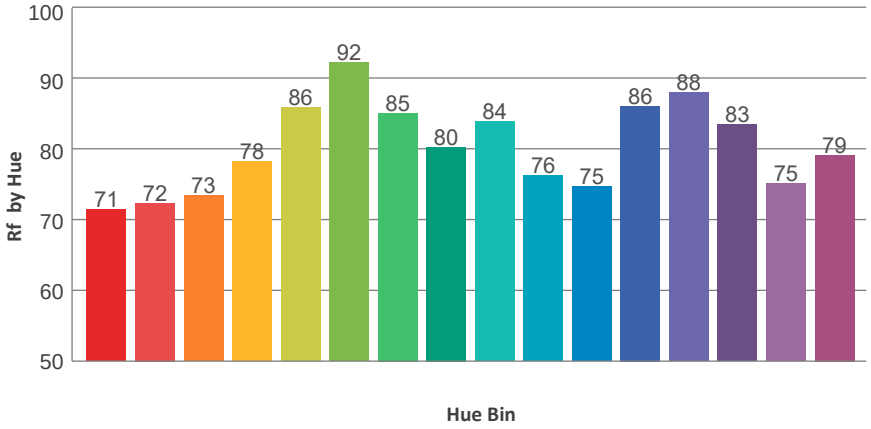
Fidelity Index Rf

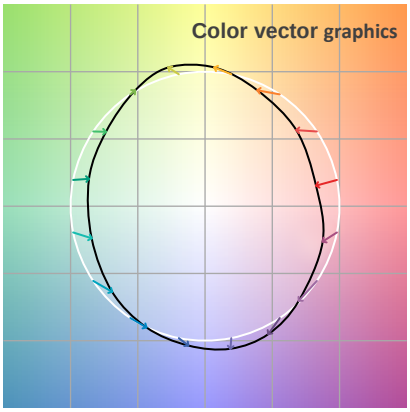
Rg 91.4

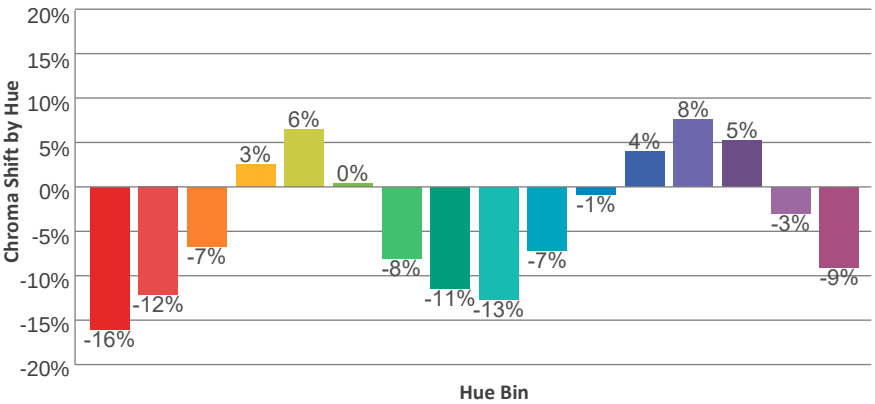
Gamut Index Rg

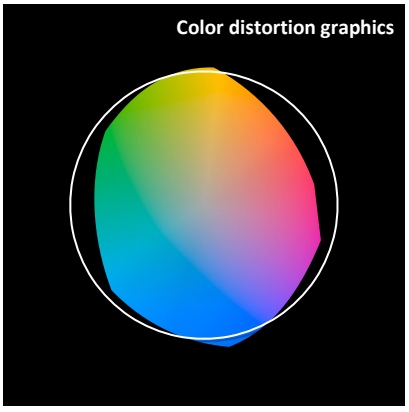
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	71	-16%	-1%
2	72	-12%	9%
3	73	-7%	16%
4	78	3%	13%
5	86	6%	7%
6	92	0%	-5%
7	85	-8%	-5%
8	80	-11%	-3%
9	84	-13%	7%
10	76	-7%	15%
11	75	-1%	14%
12	86	4%	8%
13	88	8%	-2%
14	83	5%	-14%
15	75	-3%	-20%
16	79	-9%	-9%

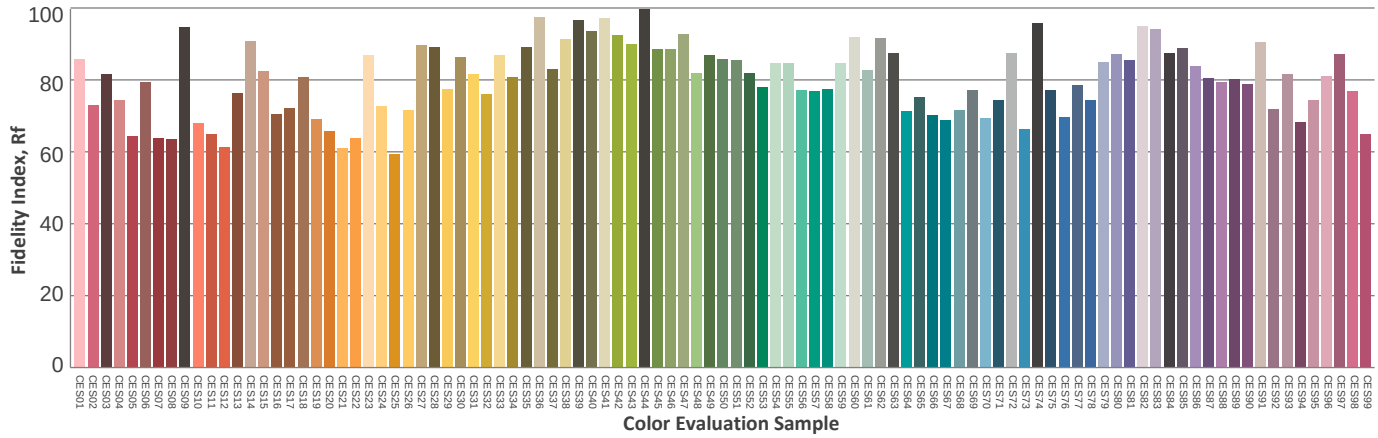












Proteus Excalibur (Wash Frost)

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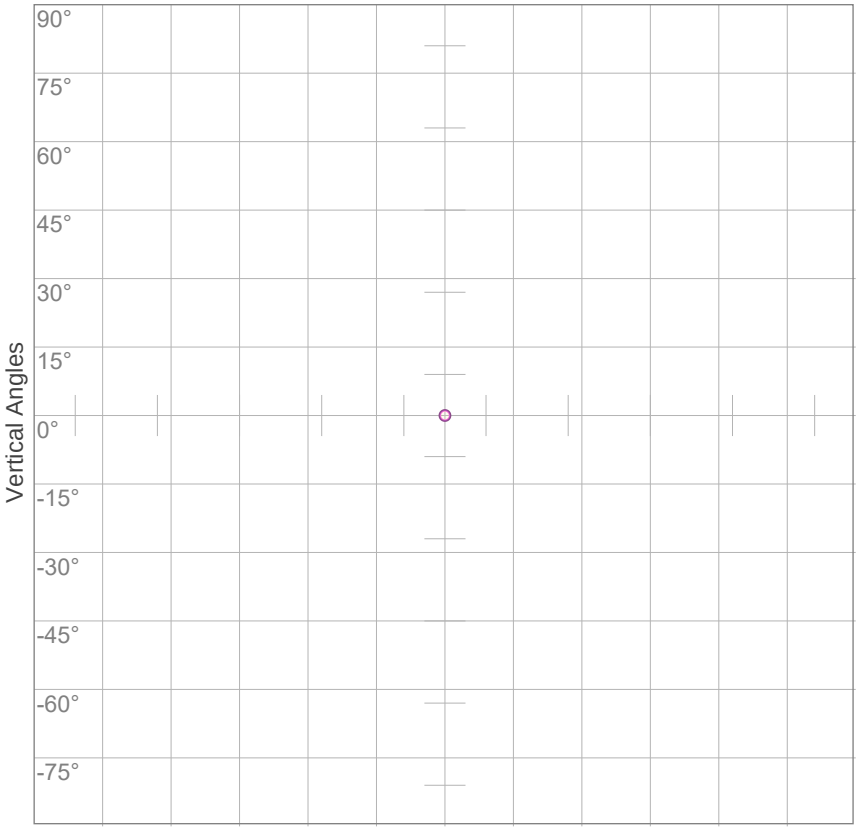
ISO Diagrams

ISO Candela Diagram



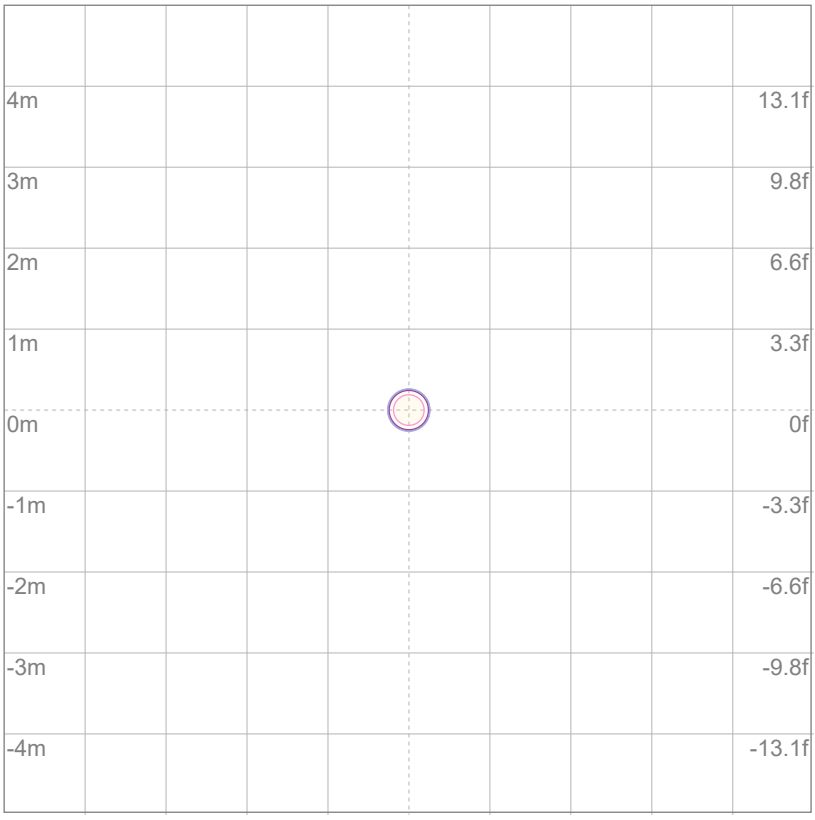
10%	2167139 cd
20%	4334278 cd
30%	6501417 cd
40%	8668556 cd
50%	10835695 cd
60%	13002833 cd
70%	15169972 cd
80%	17337111 cd
90%	19504250 cd

Conditions:

Number of c-planes: 2

Candela at center: 21671389 cd

ISO Lux Diagram



Mounting Height: 10 meters (33 feet)

3%	6501 lx
5%	10.8K lx
10%	21.7K lx
30%	65.0K lx
50%	108K lx

Conditions:

Number of c-planes: 2

Lux at center: 217K lx

Lux distribution on a surface when lamp is mounted at 10 meters from the surface.