



FUZE PROFILE CW™

Photometric Test Report

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TESTING PROCESS

Total Lumen Measurements

Lumens are measured using a Viso Systems Lab Spion and a 2π Integrating Sphere. As a goniophotometer, the Viso calculates the field lumens of the fixture by taking multiple measurements across the light beam. The measured lumens of the 2π Integrating Sphere tends to be higher than the Viso goniophotometer due to a variety of differences in measurement principles. Therefore, both values are provided in the report.

Many lumens figures provided for entertainment lighting fixtures are only the 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.

Fixtures are also analyzed using an 2π Integrating Sphere. This technique takes the output of the fixture and measures the amount of light inside a sealed perfect sphere. Due to the size of most fixtures they shine into an opening on the side of the sphere. A sensor is mounted behind a glare shield to avoid direct light input and a very short measurement is taken to gather the total lumens within the sphere. Due to different measurement principles, distortion and measurement uncertainties there is a difference in these results.

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 C700](#)

Photometric Report

Total Lumen Output*

Integrating Sphere 10984 lm

VISO Lab Spion 9378 lm

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%
9.3°	10.3°	10.9°

Color Temperature: 6070 K

CRI: 91.4

TLCI: 86

TM30: 85.4

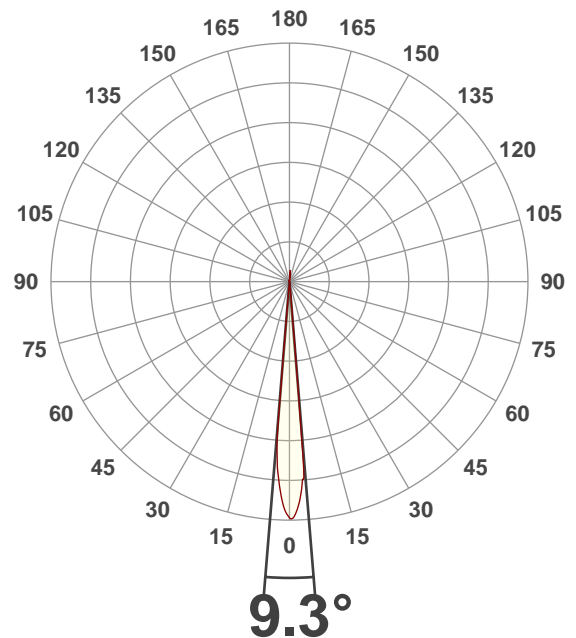
CQS: 86.3

Voltage: 116 V, Current: 4.40 A

Power: 510.1 W

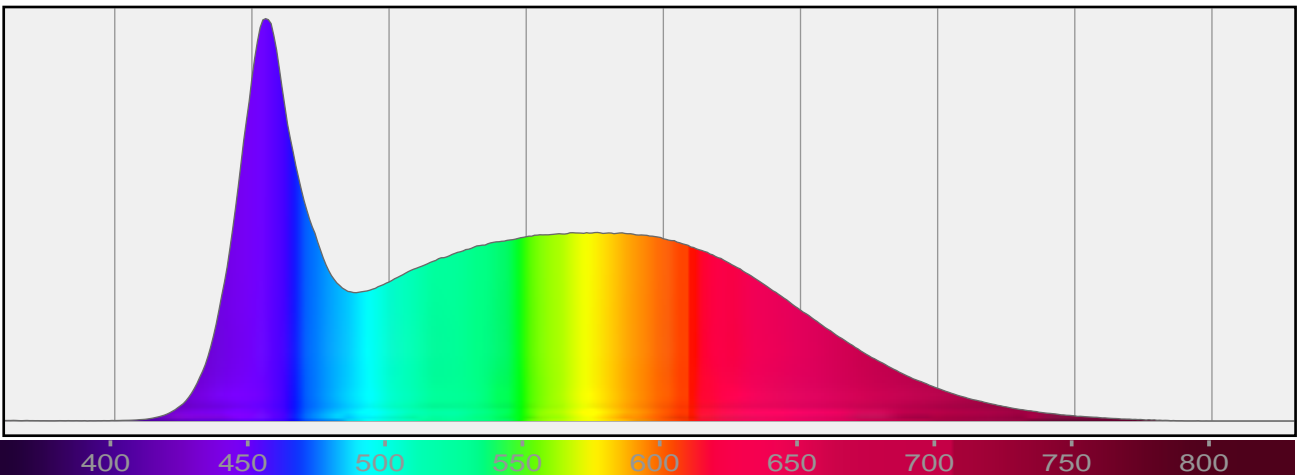
Efficacy: 18 Lumen/Watt

Measurement Date: 7/30/2019



Spectral Distribution

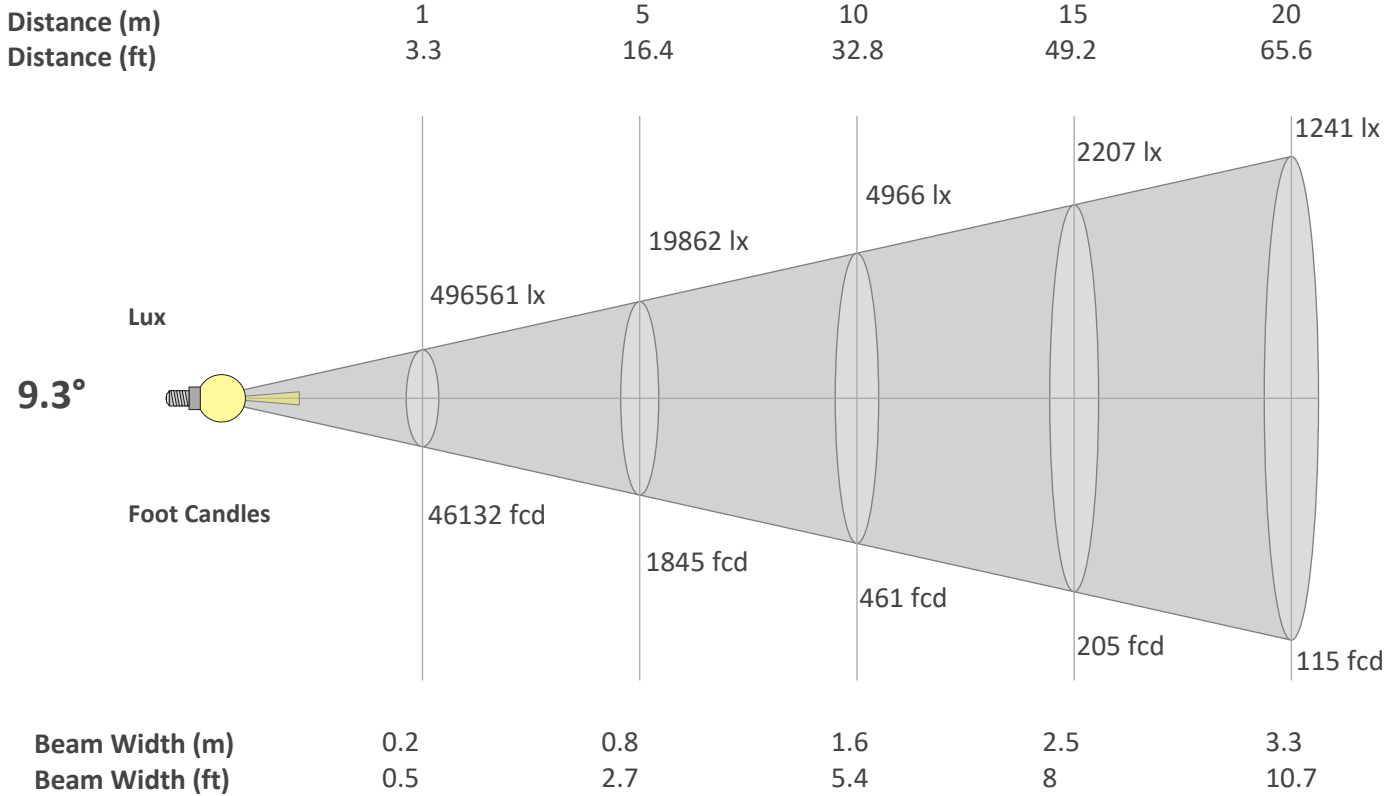
Dominant Wavelength 829 nm



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

Beam Details

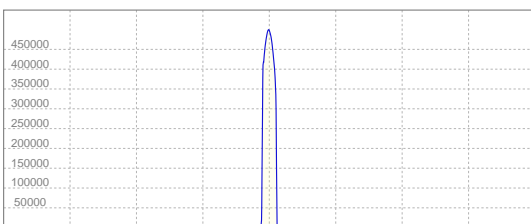
Beam Angle 50%	Field Angle 10%	Cutoff Angle 2,5%
9.3°	10.3°	10.9°



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	496561	124140	55173	31035	19862	13793	10134	7759	6130	4966	4104	3448	2938	2533	2207	1940	1718	1533	1376	1241
FC	46132	11533	5125.8	2883.2	1845.3	1281.4	941.5	720.8	569.5	461.3	381.3	320.4	273	235.4	205	180.2	159.6	142.4	127.8	115.3

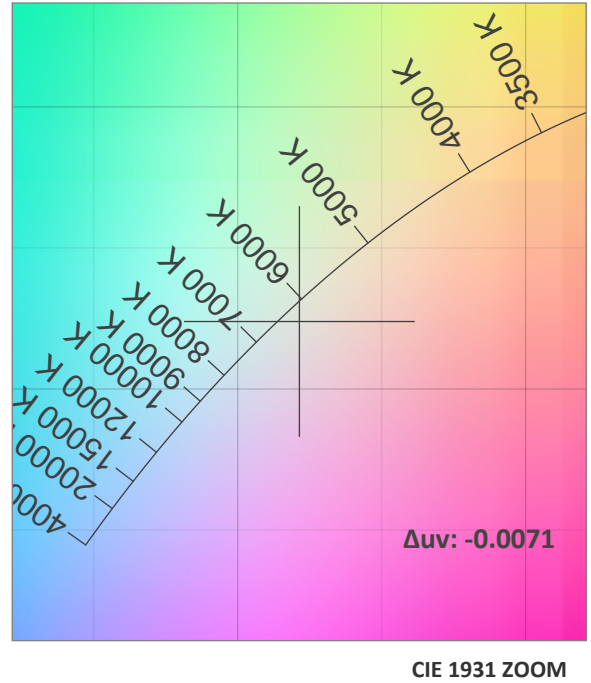
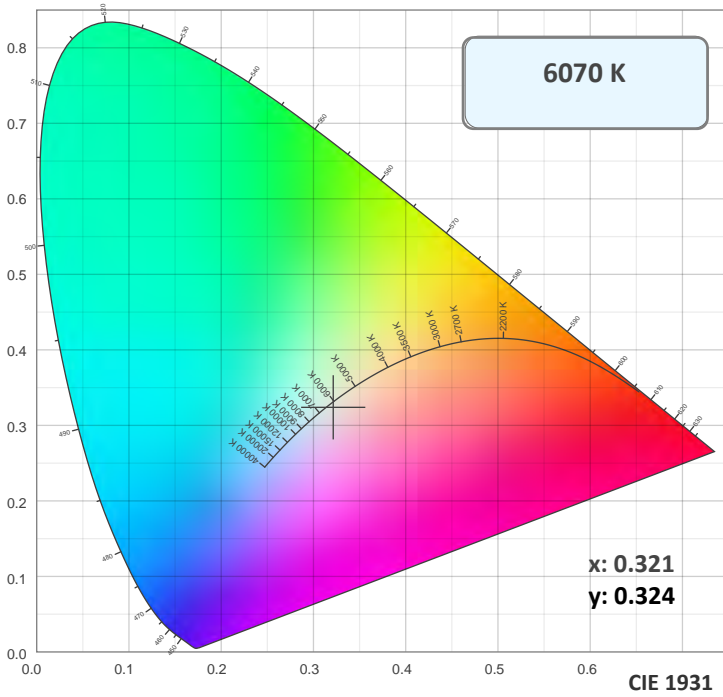
Linear Distribution



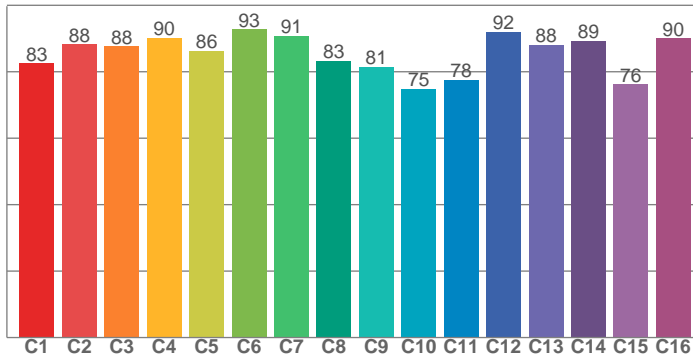
Peak Candela
499225 cd

Calculate Center Beam Intensities
 $lux = 499225 / distance(m)^2$
 $fc = 499225 / distance(ft)^2$

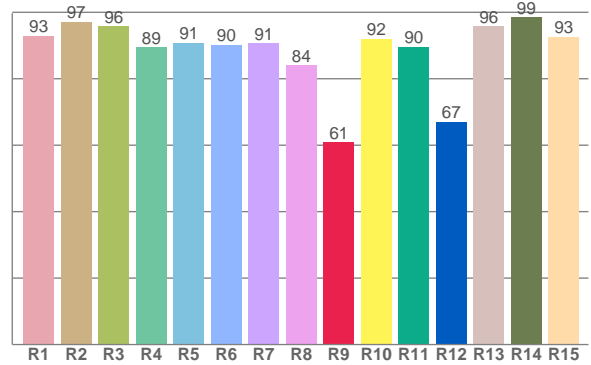
Color Details



TM30: 85.4



CRI: 91.4 (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
93.0	97.1	95.9	89.5	90.8	90.2	90.7	84.1	60.8	92.0	89.7	67.0	95.8	98.5	92.6

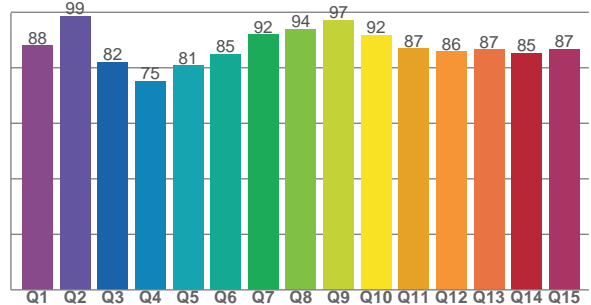
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
82.5	88.3	87.6	90.1	86.3	92.8	90.7	83.4	81.5	74.8	77.6	92.1	88.0	89.2	76.2	90.0

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.0	98.7	82.1	75.3	80.7	84.9	92.0	93.8	97.3	91.8	86.9	85.8	86.5	85.2	86.8

CQS: 86.3



Color Parameters

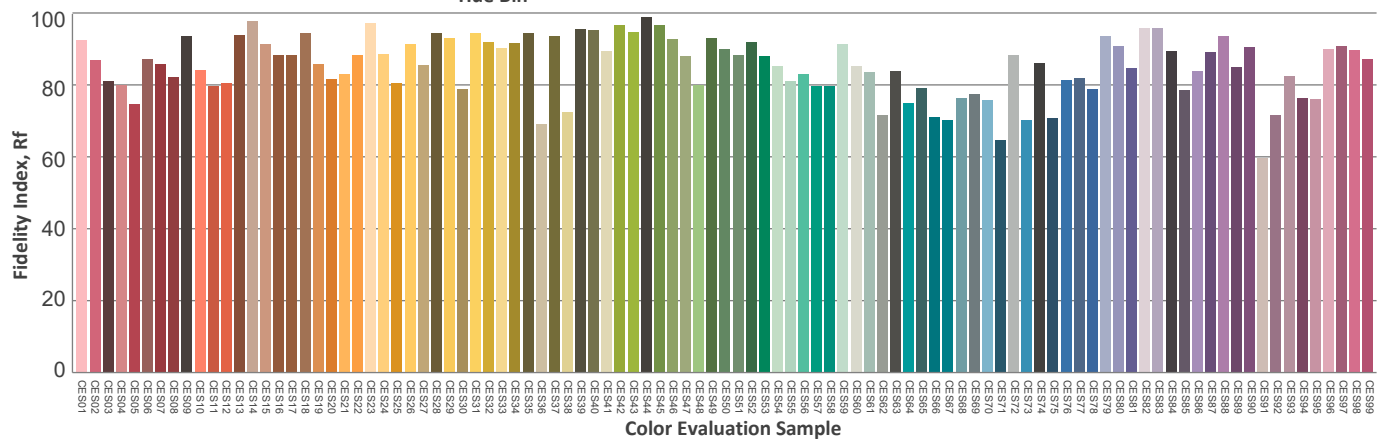
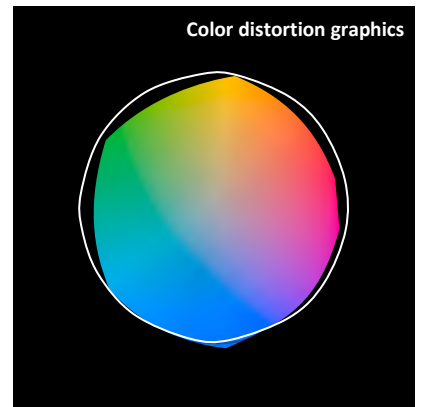
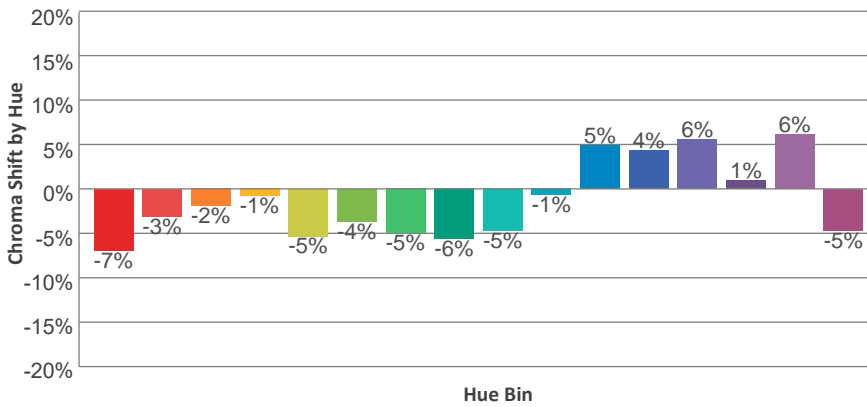
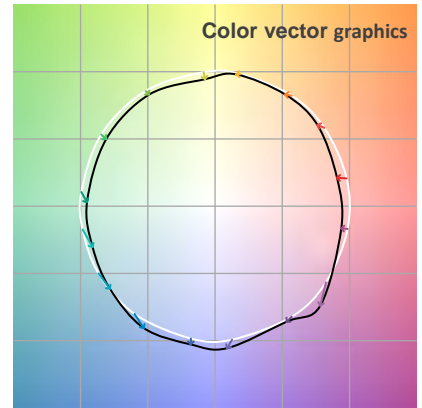
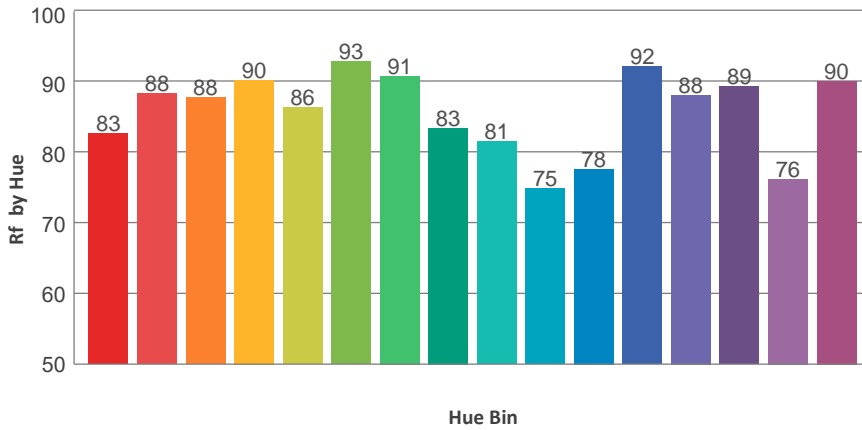
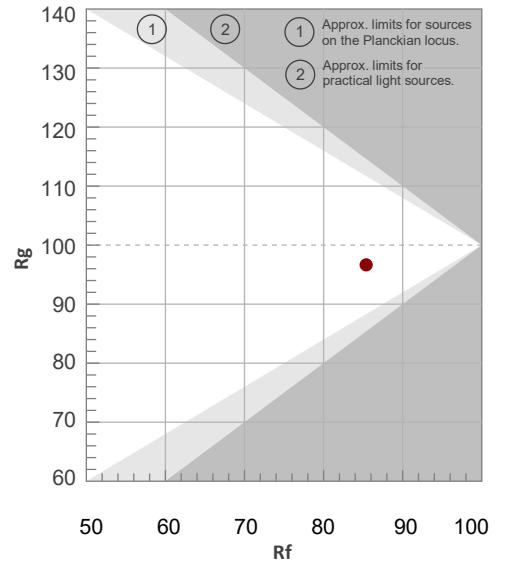
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
6070 K	91.4	60.8	85.4	96.7	86.3	0.321	0.324	0.206	0.311	-0.0071

TM30 Details

Rf 85.4
Fidelity Index Rf

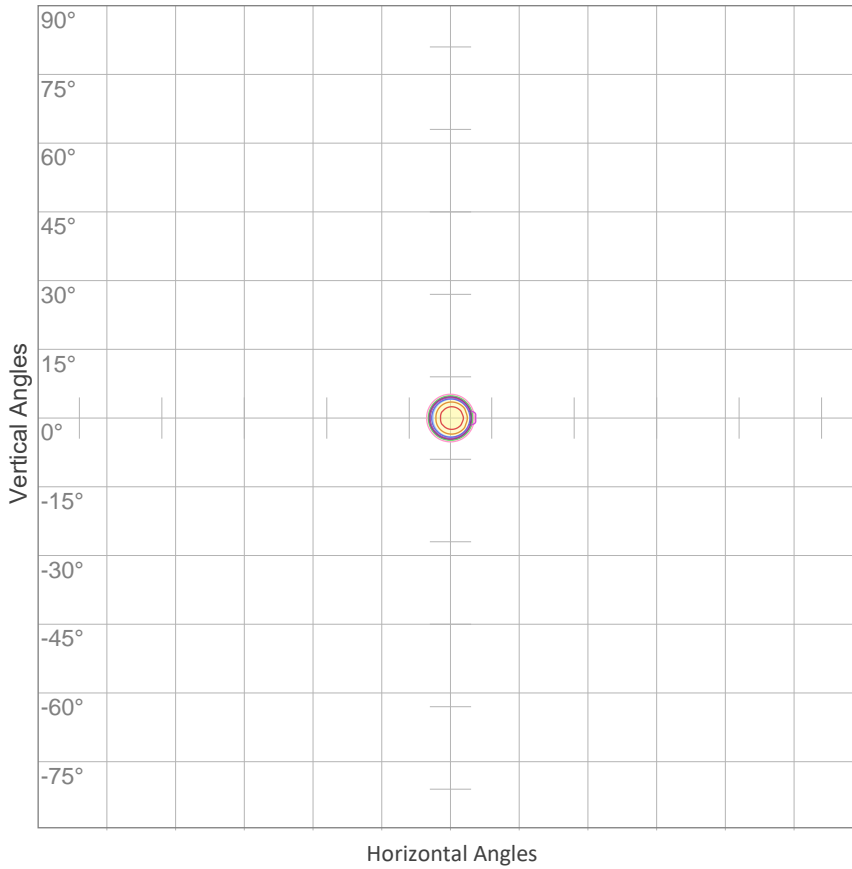
Rg 96.7
Gamut Index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	83	-7%	2%
2	88	-3%	5%
3	88	-2%	5%
4	90	-1%	3%
5	86	-5%	0%
6	93	-4%	-1%
7	91	-5%	1%
8	83	-6%	7%
9	81	-5%	14%
10	75	-1%	14%
11	78	5%	11%
12	92	4%	1%
13	88	6%	-5%
14	89	1%	-5%
15	76	6%	-17%
16	90	-5%	-1%



ISO Diagrams

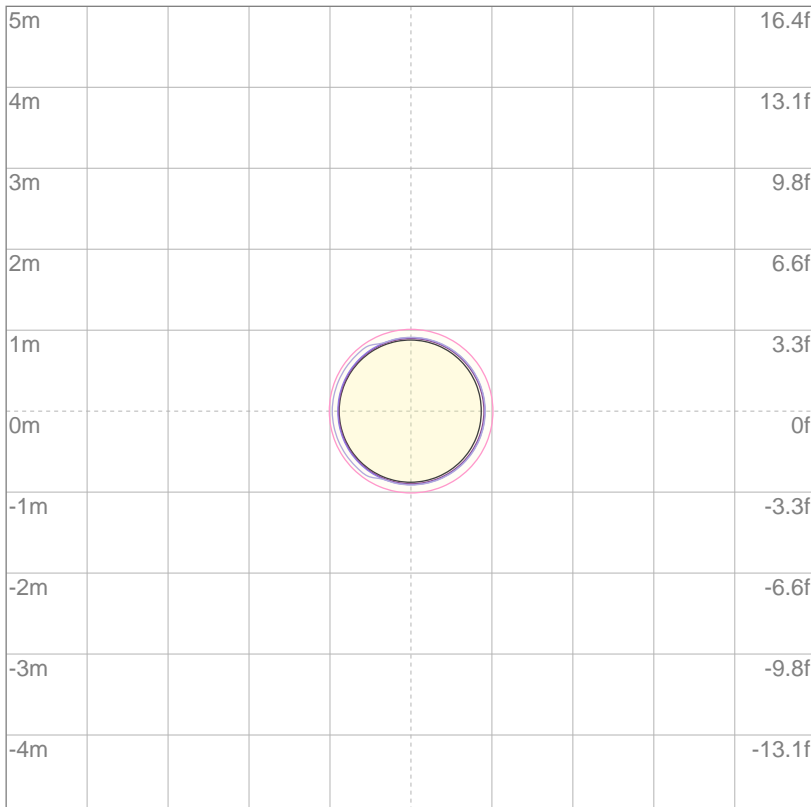
ISO Candela Diagram



10%	49656 cd
20%	99312 cd
30%	148968 cd
40%	198624 cd
50%	248280 cd
60%	297936 cd
70%	347592 cd
80%	397248 cd
90%	446904 cd

Conditions:
 Number of c-planes: 2
 Candela at center: 496561 cd

ISO Lux Diagram



3%	149 lx
5%	248 lx
10%	497 lx
30%	1490 lx
50%	2483 lx

Conditions:
 Number of c-planes: 2
 Lux at center: 4966 lx

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

Mounting Height: 10 meters (33 feet)

Photometric Report

Total Lumen Output*

Integrating Sphere 11213 lm

VISO Lab Spion 10192 lm

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%
18.2°	21°	21.6°

Color Temperature: 6093 K

CRI: 91.6

TLCI: 86

TM30: 85.4

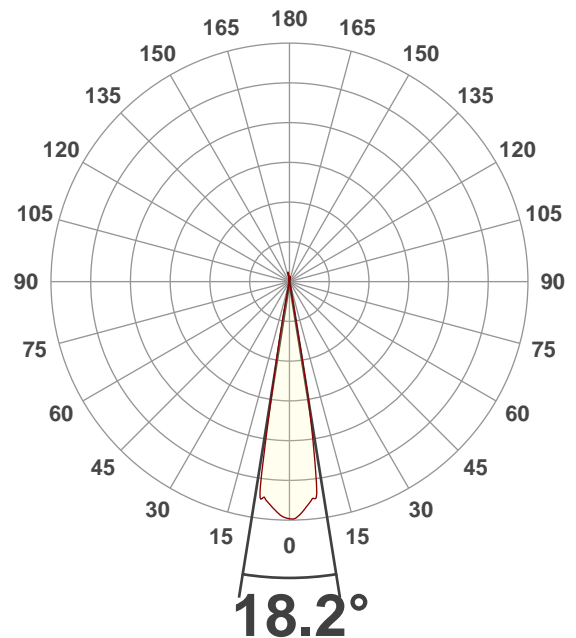
CQS: 86.3

Voltage: 116 V, Current: 4.35 A

Power: 504.9 W

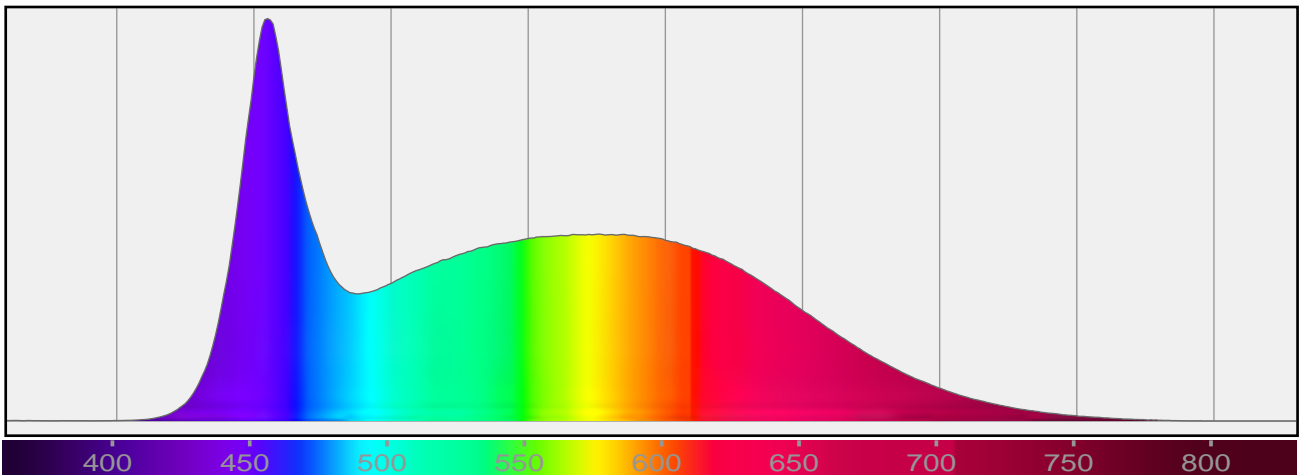
Efficacy: 20 Lumen/Watt

Measurement Date: 7/30/2019



Spectral Distribution

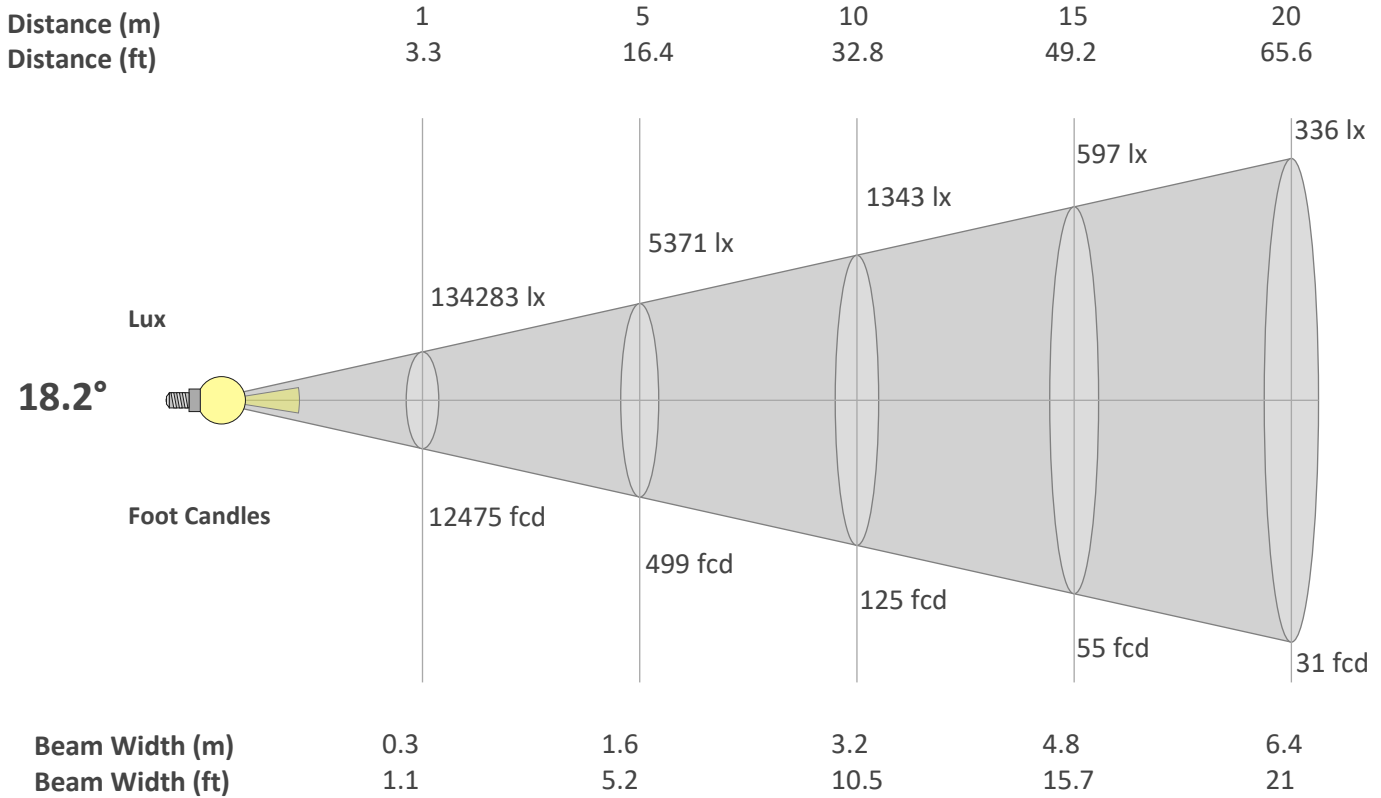
Dominant Wavelength 829 nm



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

Beam Details

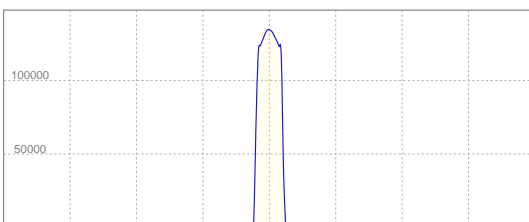
Beam Angle 50%	Field Angle 10%	Cutoff Angle 2,5%
18.2°	21°	21.6°



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	134283	33571	14920	8393	5371	3730	2740	2098	1658	1343	1110	933	795	685	597	525	465	414	372	336
FC	12475.3	3118.8	1386.1	779.7	499	346.5	254.6	194.9	154	124.8	103.1	86.6	73.8	63.6	55.4	48.7	43.2	38.5	34.6	31.2

Linear Distribution



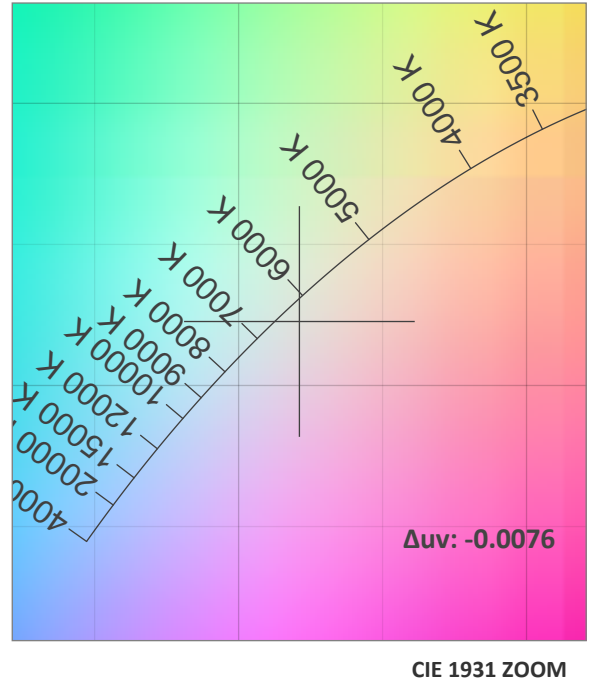
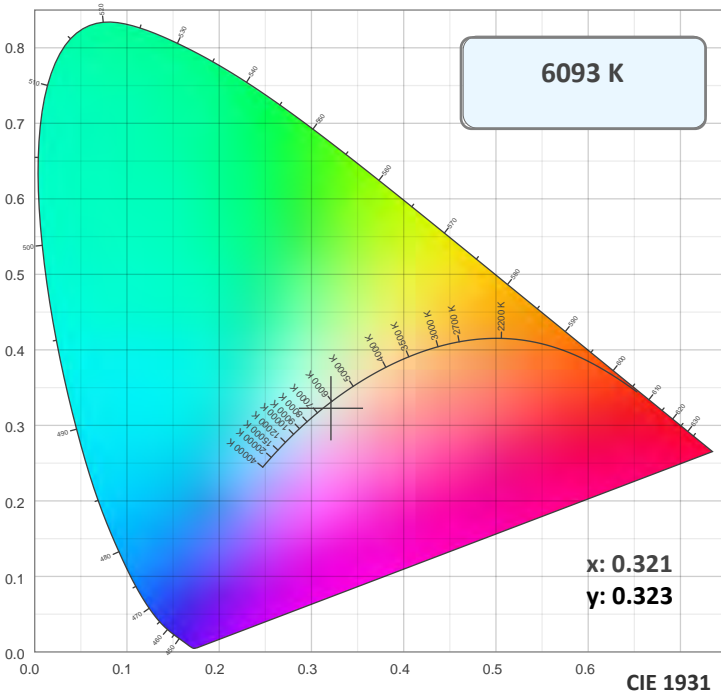
Peak Candela
134372 cd

Calculate Center Beam Intensities

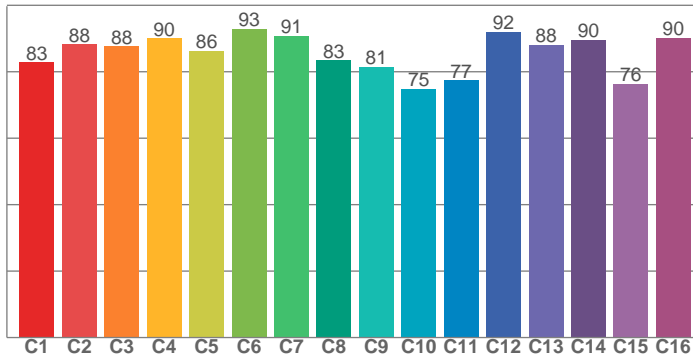
$lux = 134372 / distance(m)^2$

$fc = 134372 / distance(ft)^2$

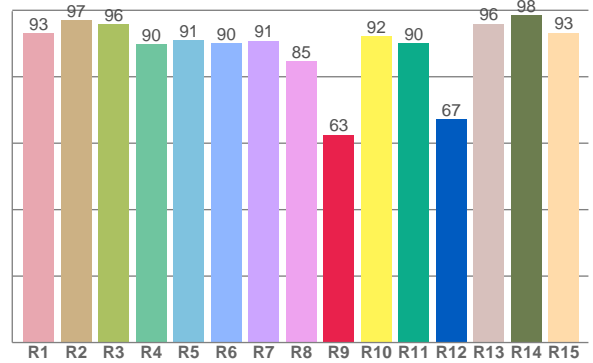
Color Details



TM30: 85.4



CRI: 91.6 (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
93.2	97.1	95.9	89.8	91.0	90.1	90.9	84.7	62.6	92.2	90.0	67.2	96.0	98.5	93.2

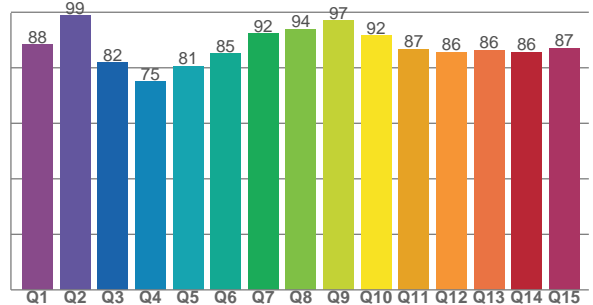
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
82.8	88.3	87.6	90.1	86.3	92.9	90.8	83.4	81.5	74.8	77.4	92.0	88.2	89.6	76.4	90.2

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.4	98.8	81.9	75.1	80.7	85.1	92.3	94.0	97.0	91.6	86.7	85.6	86.4	85.6	87.1

CQS: 86.3



Color Parameters

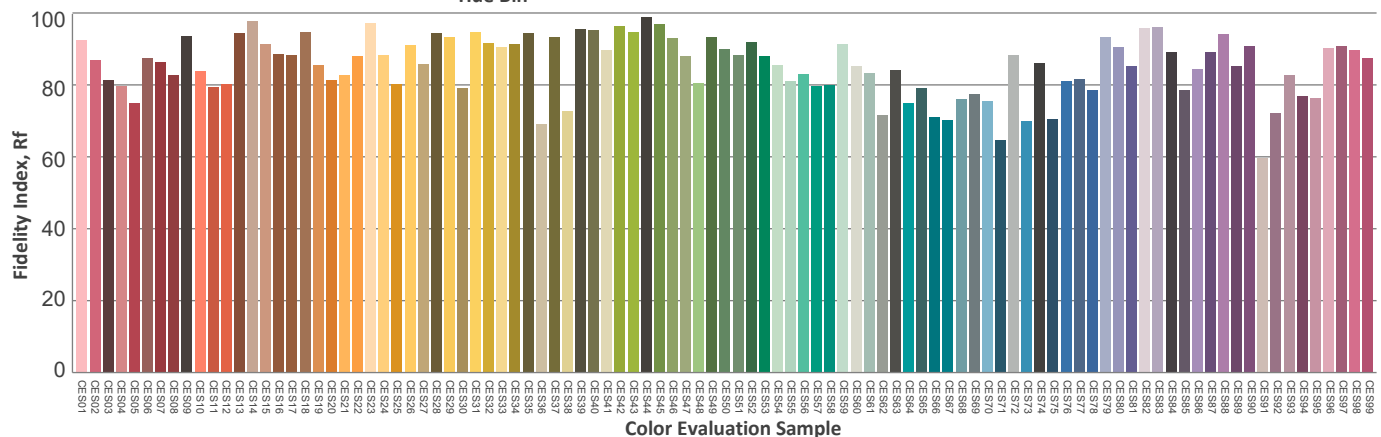
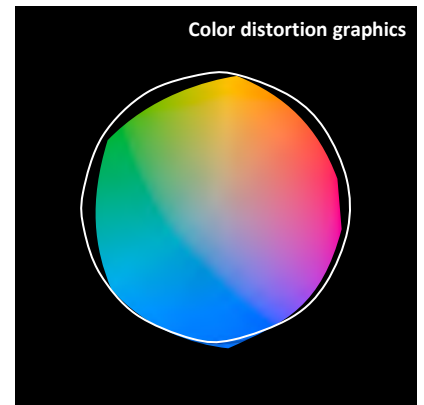
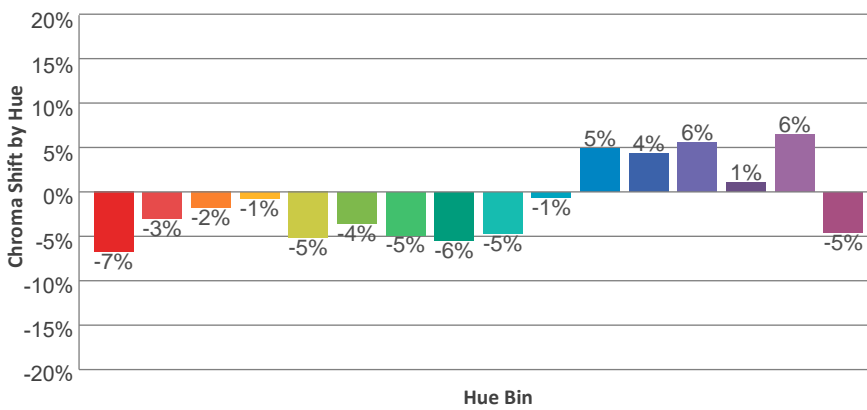
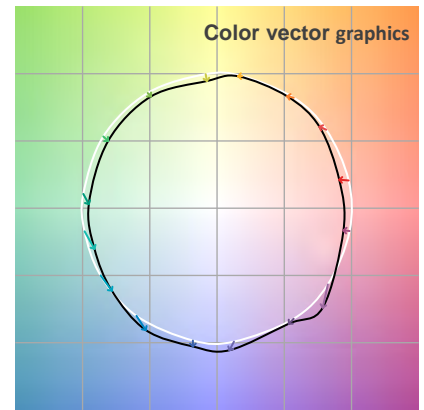
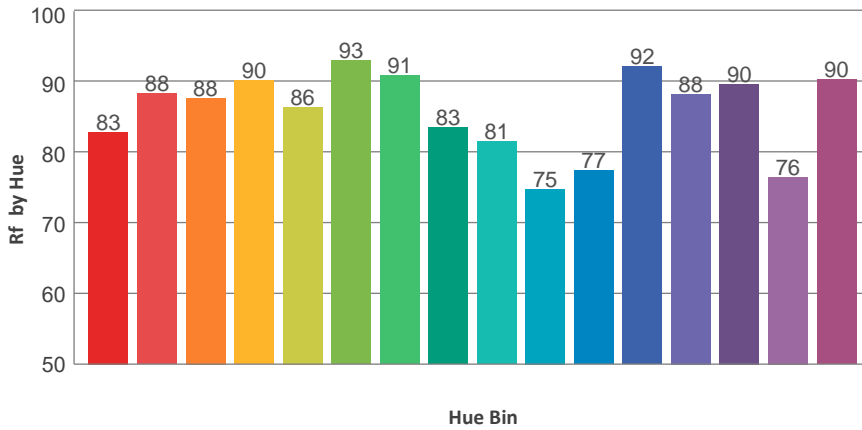
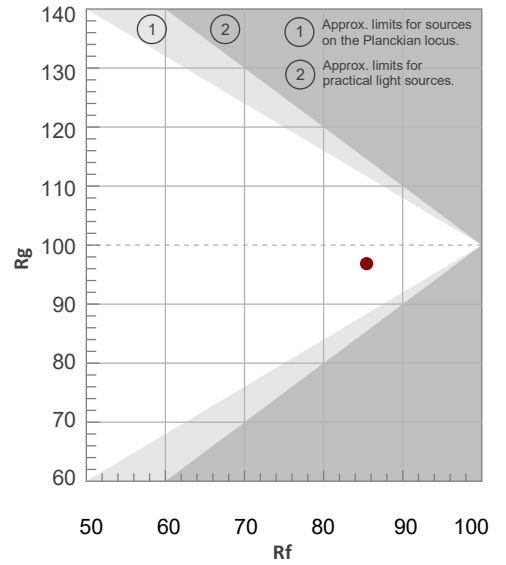
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
6093 K	91.6	62.6	85.4	96.9	86.3	0.321	0.323	0.206	0.311	-0.0076

TM30 Details

Rf 85.4
Fidelity Index Rf

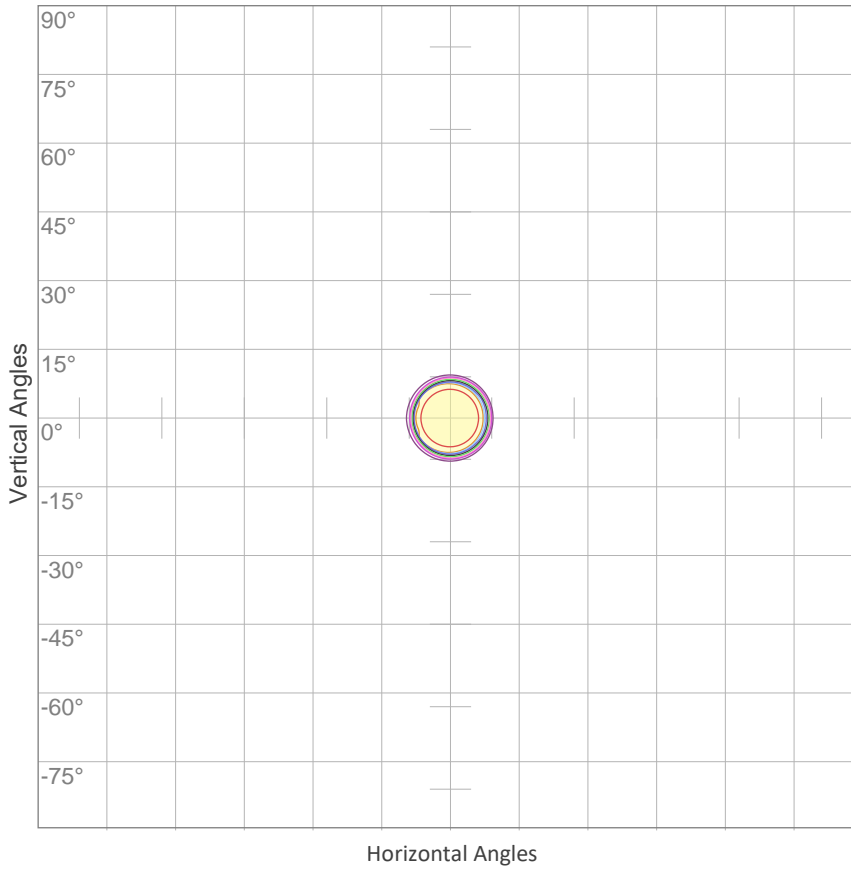
Rg 96.9
Gamut Index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	83	-7%	2%
2	88	-3%	5%
3	88	-2%	5%
4	90	-1%	3%
5	86	-5%	0%
6	93	-4%	-1%
7	91	-5%	1%
8	83	-6%	7%
9	81	-5%	14%
10	75	-1%	14%
11	77	5%	12%
12	92	4%	1%
13	88	6%	-4%
14	90	1%	-5%
15	76	6%	-16%
16	90	-5%	0%



ISO Diagrams

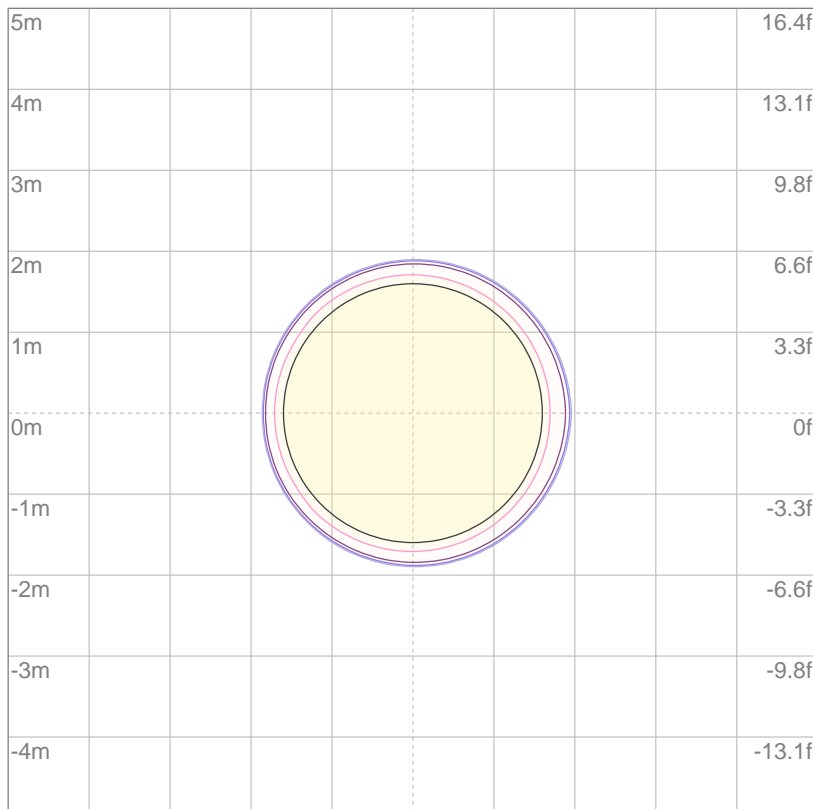
ISO Candela Diagram



10%	13428 cd
20%	26857 cd
30%	40285 cd
40%	53713 cd
50%	67142 cd
60%	80570 cd
70%	93998 cd
80%	107427 cd
90%	120855 cd

Conditions:
 Number of c-planes: 2
 Candela at center: 134283 cd

ISO Lux Diagram



3%	40.3 lx
5%	67.1 lx
10%	134 lx
30%	403 lx
50%	671 lx

Conditions:
 Number of c-planes: 2
 Lux at center: 1343 lx

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

Mounting Height: 10 meters (33 feet)

Photometric Report

Total Lumen Output*

Integrating Sphere 10581 lm

VISO Lab Spion 10341 lm

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%
43.1°	46.8°	48.2°

Color Temperature: 6101 K

CRI: 91.6

TLCI: 86

TM30: 85.4

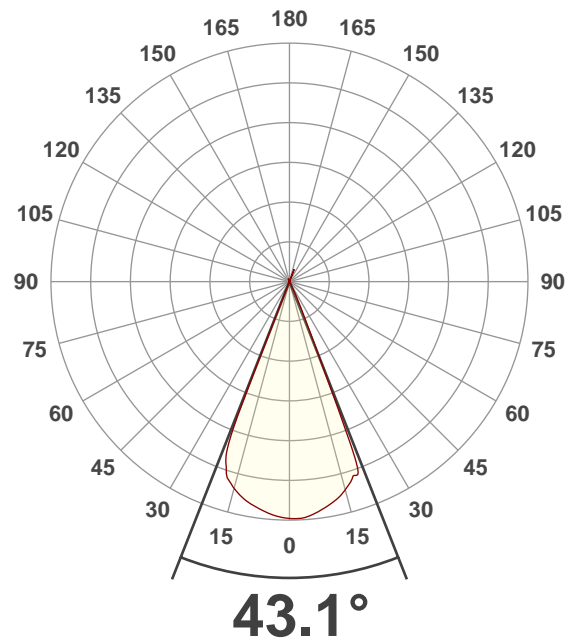
CQS: 86.3

Voltage: 116 V, Current: 4.40 A

Power: 510.1 W

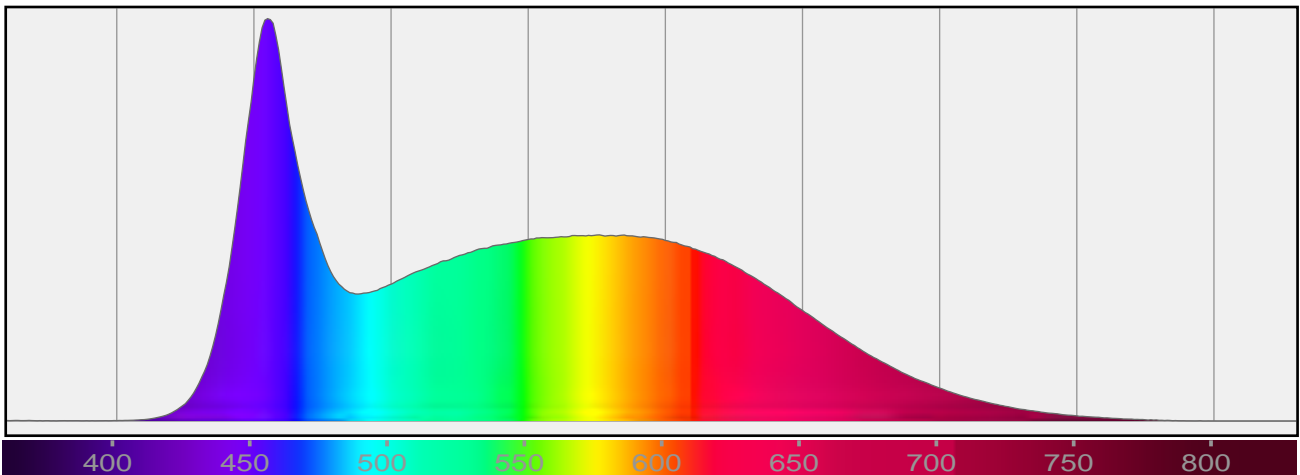
Efficacy: 20 Lumen/Watt

Measurement Date: 7/30/2019



Spectral Distribution

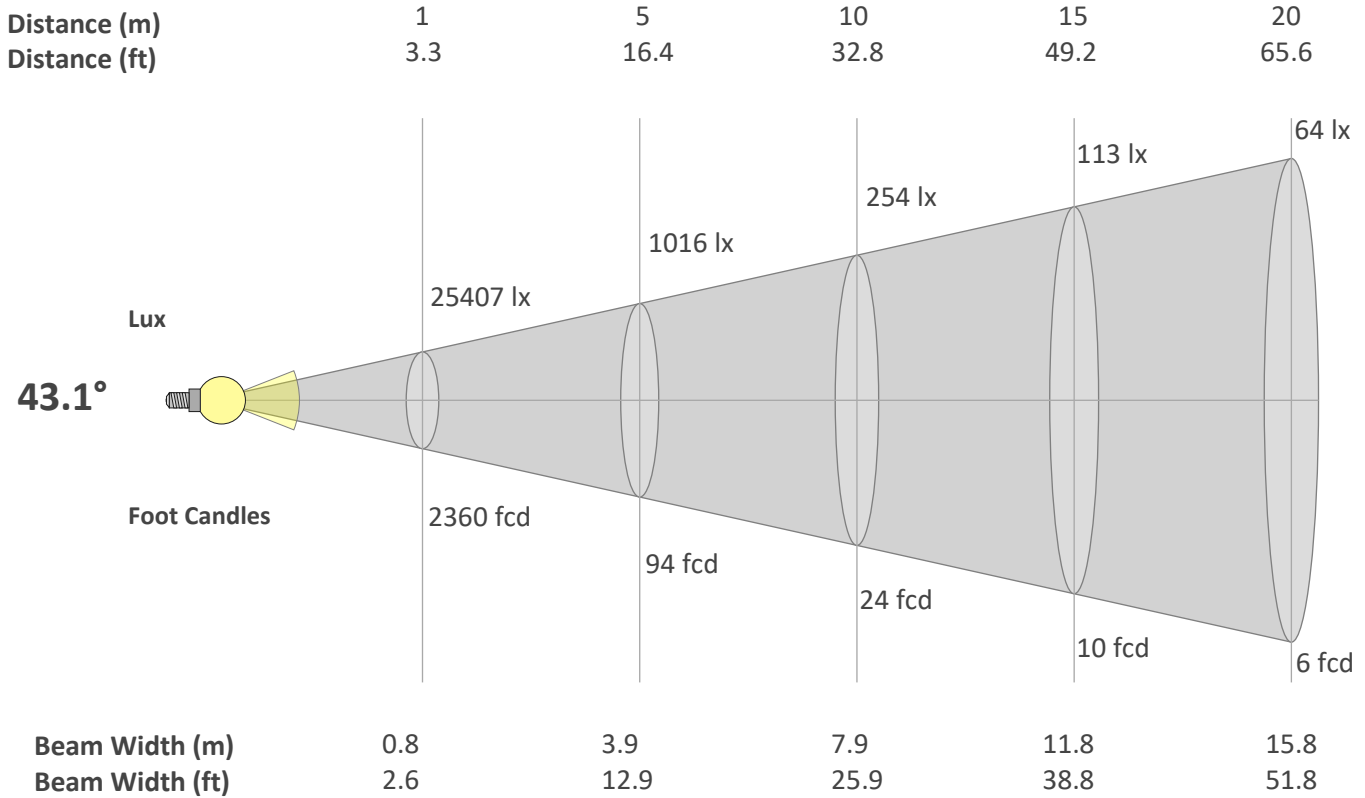
Dominant Wavelength 829 nm



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

Beam Details

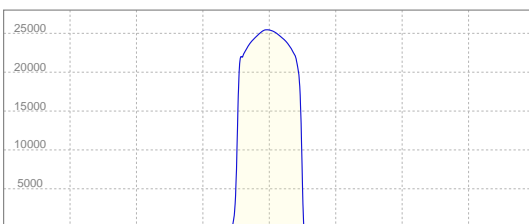
Beam Angle 50%	Field Angle 10%	Cutoff Angle 2,5%
43.1°	46.8°	48.2°



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	25407	6352	2823	1588	1016	706	519	397	314	254	210	176	150	130	113	99	88	78	70	64
FC	2360.4	590.1	262.3	147.5	94.4	65.6	48.2	36.9	29.1	23.6	19.5	16.4	14	12	10.5	9.2	8.2	7.3	6.5	5.9

Linear Distribution



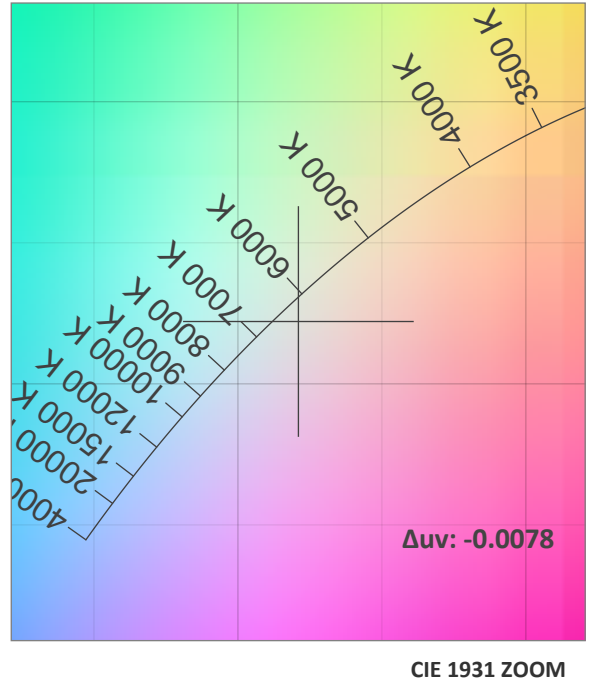
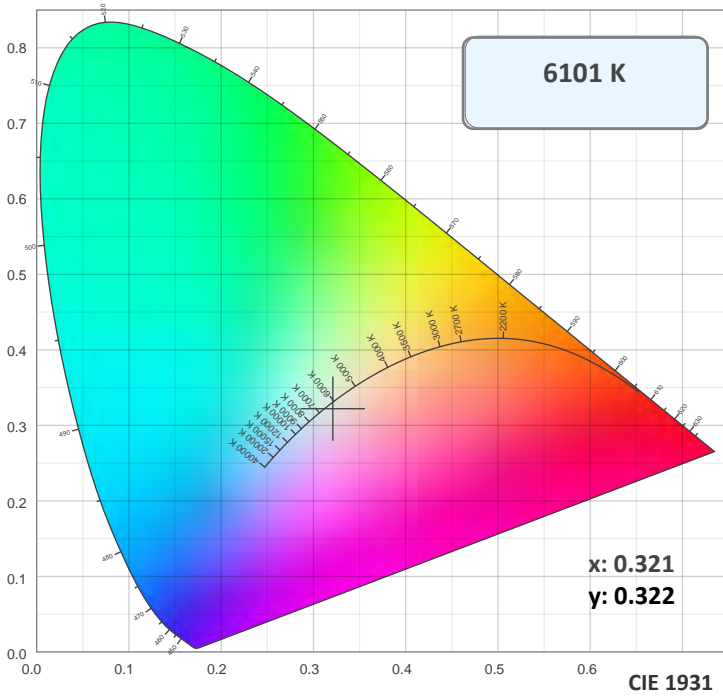
Peak Candela
25446 cd

Calculate Center Beam Intensities

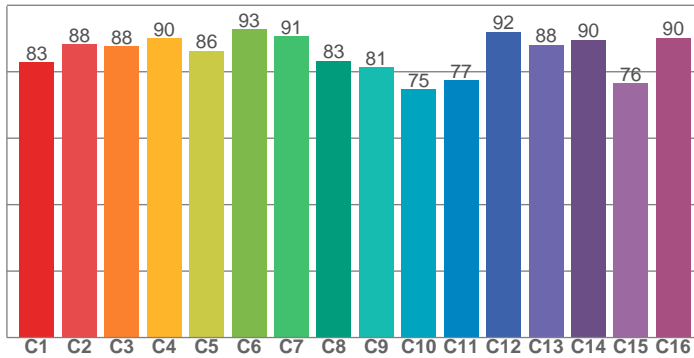
$lux = 25446 / distance(m)^2$

$fc = 25446 / distance(ft)^2$

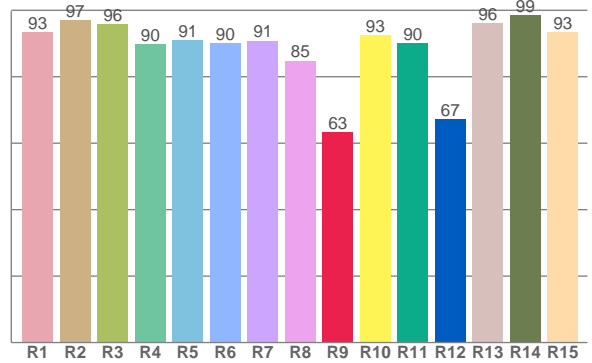
Color Details



TM30: 85.4



CRI: 91.6 (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
93.3	97.1	95.9	89.8	91.1	90.1	90.8	84.8	63.3	92.5	90.1	67.2	96.1	98.5	93.5

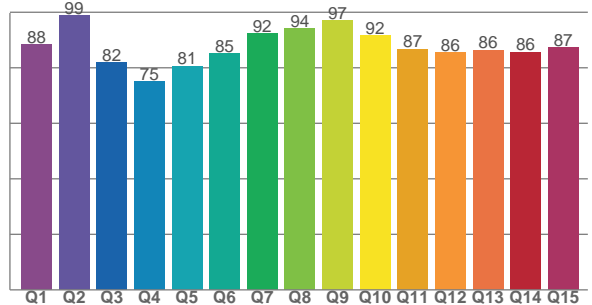
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
82.8	88.2	87.7	90.1	86.3	92.8	90.7	83.2	81.4	74.7	77.4	92.0	88.2	89.7	76.5	90.2

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.4	98.8	81.9	75.0	80.6	85.0	92.4	94.1	97.0	91.6	86.7	85.5	86.3	85.7	87.2

CQS: 86.3



Color Parameters

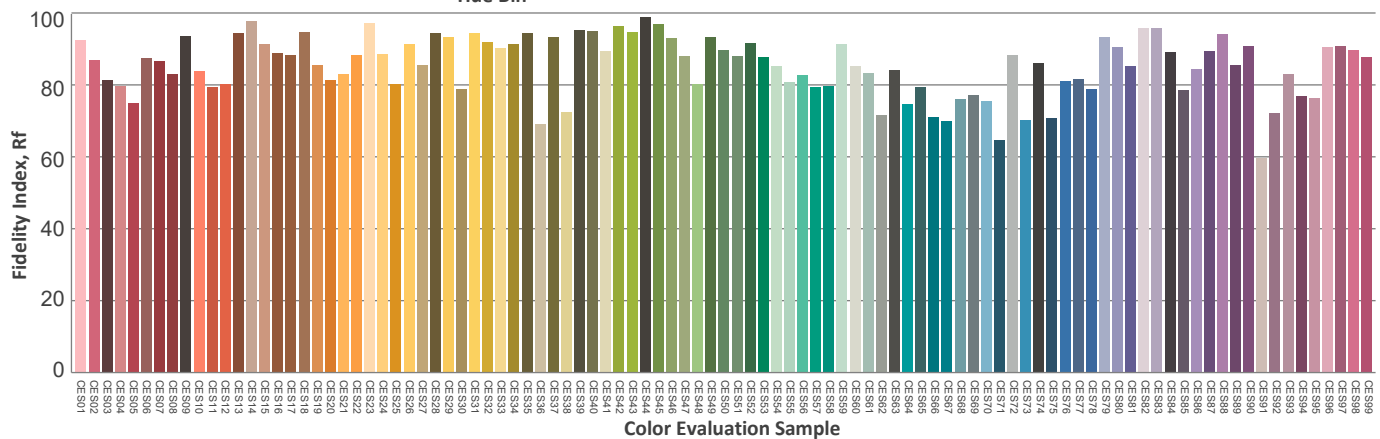
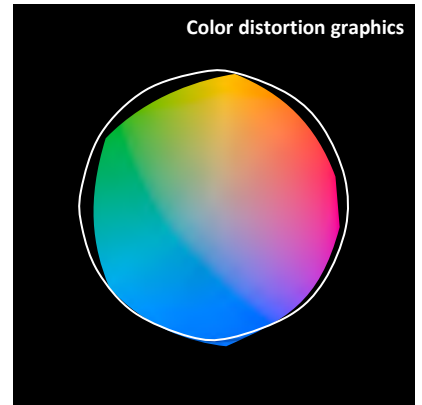
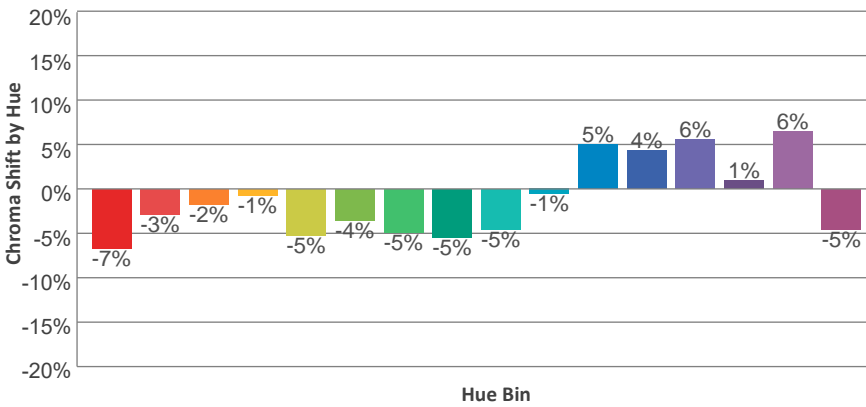
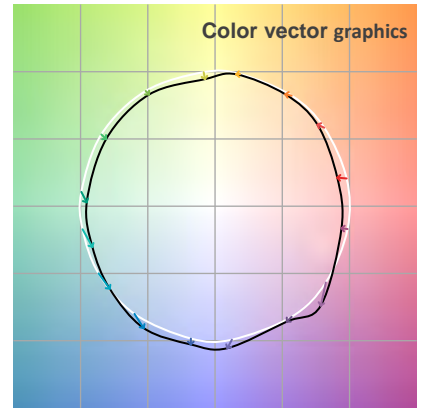
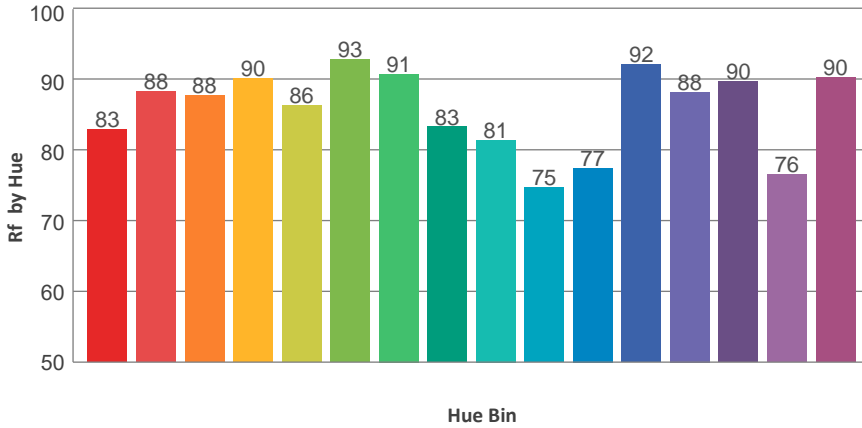
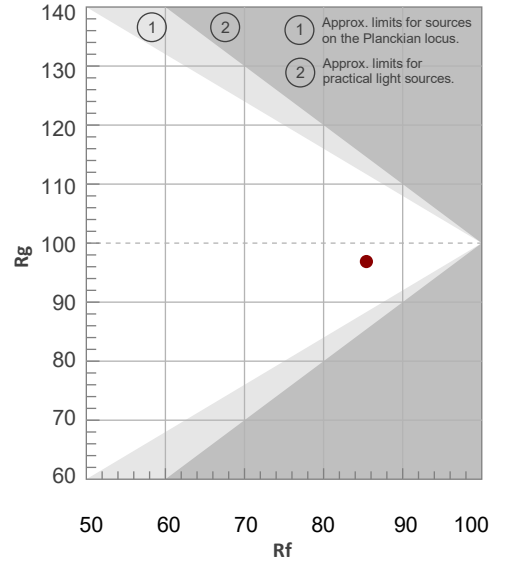
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
6101 K	91.6	63.3	85.4	96.9	86.3	0.321	0.322	0.206	0.311	-0.0078

TM30 Details

Rf 85.4
Fidelity Index Rf

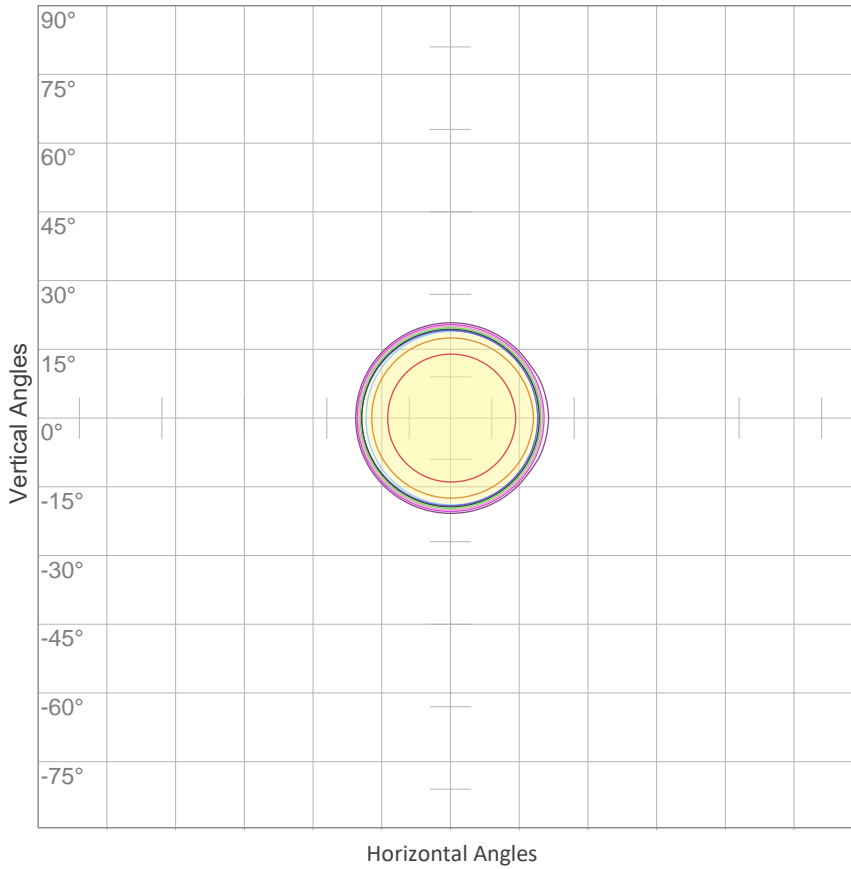
Rg 96.9
Gamut Index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	83	-7%	2%
2	88	-3%	5%
3	88	-2%	5%
4	90	-1%	3%
5	86	-5%	0%
6	93	-4%	-1%
7	91	-5%	1%
8	83	-5%	7%
9	81	-5%	14%
10	75	-1%	14%
11	77	5%	12%
12	92	4%	1%
13	88	6%	-5%
14	90	1%	-5%
15	76	6%	-16%
16	90	-5%	0%



ISO Diagrams

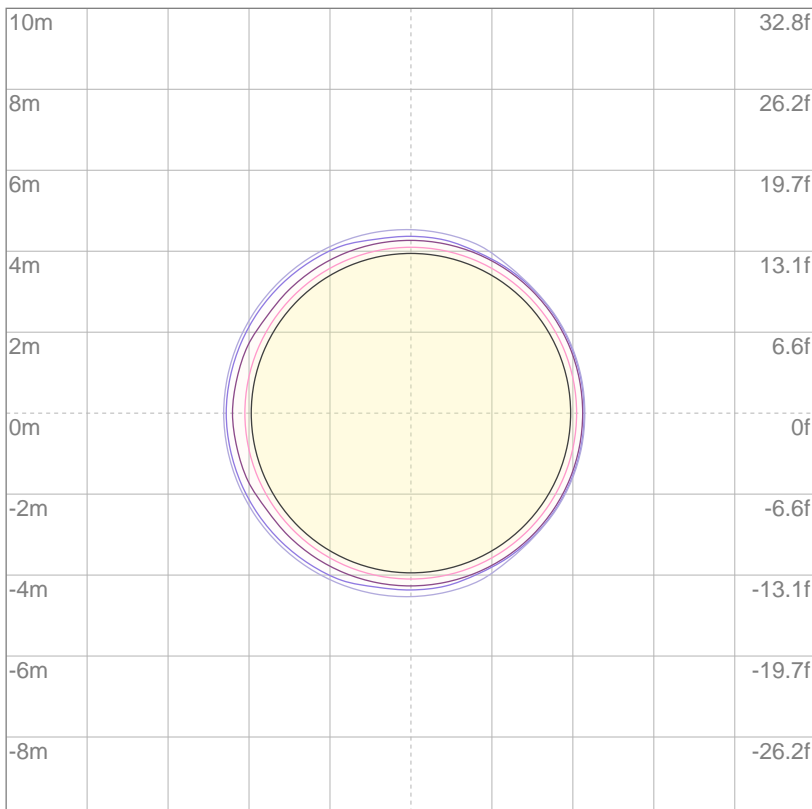
ISO Candela Diagram



10%	2541 cd
20%	5081 cd
30%	7622 cd
40%	10163 cd
50%	12704 cd
60%	15244 cd
70%	17785 cd
80%	20326 cd
90%	22867 cd

Conditions:
 Number of c-planes: 2
 Candela at center: 25407 cd

ISO Lux Diagram



3%	7.62 lx
5%	12.7 lx
10%	25.4 lx
30%	76.2 lx
50%	127 lx

Conditions:
 Number of c-planes: 2
 Lux at center: 254 lx

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

Mounting Height: 10 meters (33 feet)

Photometric Report

Total Lumen Output*

Integrating Sphere N/A
 VISO Lab Spion 7398 lm

Beam Angle 50%	Field Angle 10%	Cutoff Angle 2.5%
18.3°	20.9°	21.5°

Color Temperature: 3100 K

CRI: 79.8

TLCI: 64

TM30: 78.8

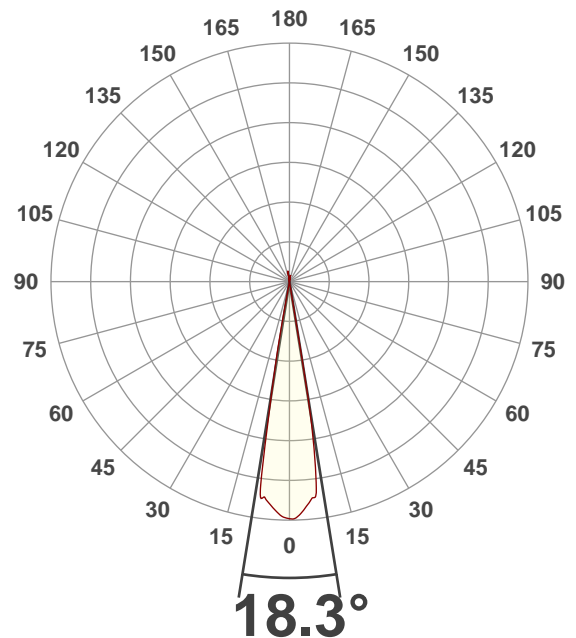
CQS: 77.7

Voltage: 116 V, Current: 4.39 A

Power: 509 W

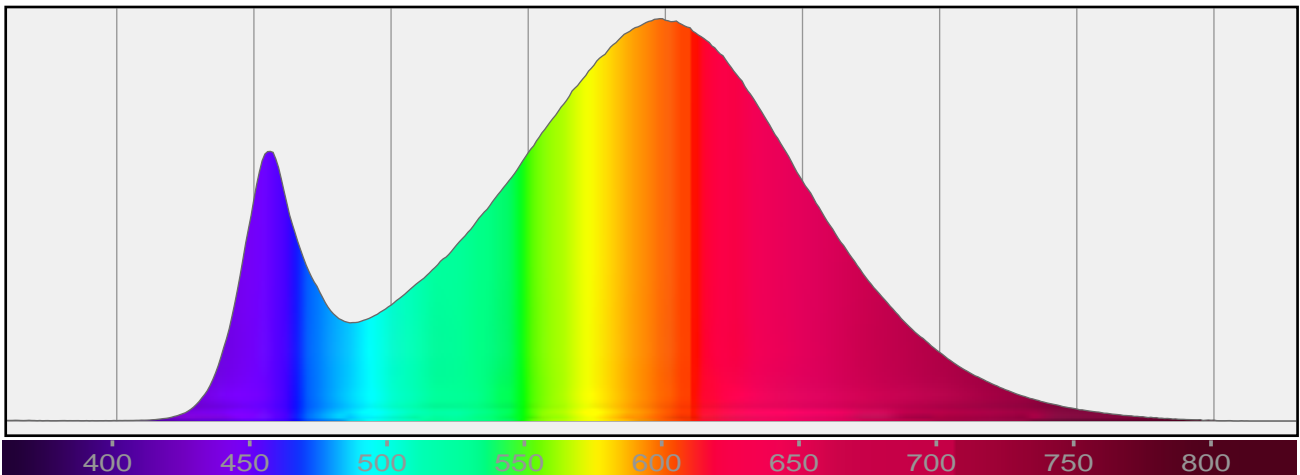
Efficacy: 15 Lumen/Watt

Measurement Date: 7/30/2019



Spectral Distribution

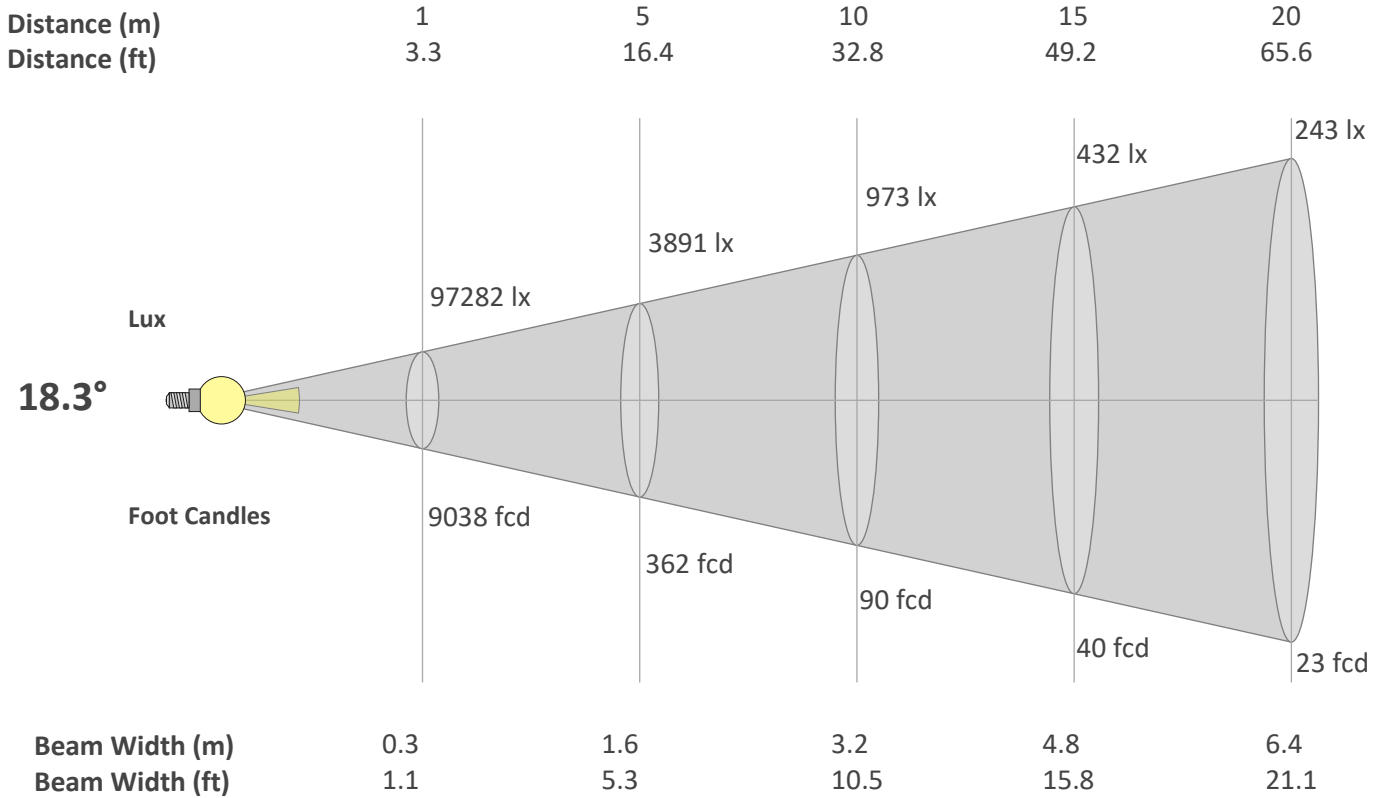
Dominant Wavelength 585 nm



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

Beam Details

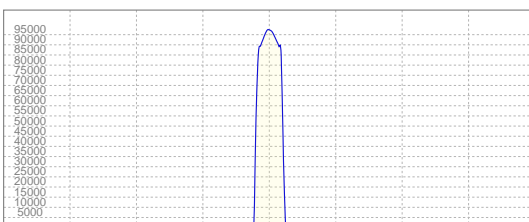
Beam Angle 50%	Field Angle 10%	Cutoff Angle 2,5%
18.3°	20.9°	21.5°



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	97282	24321	10809	6080	3891	2702	1985	1520	1201	973	804	676	576	496	432	380	337	300	269	243
FC	9037.8	2259.5	1004.2	564.9	361.5	251.1	184.4	141.2	111.6	90.4	74.7	62.8	53.5	46.1	40.2	35.3	31.3	27.9	25	22.6

Linear Distribution



Peak Candela

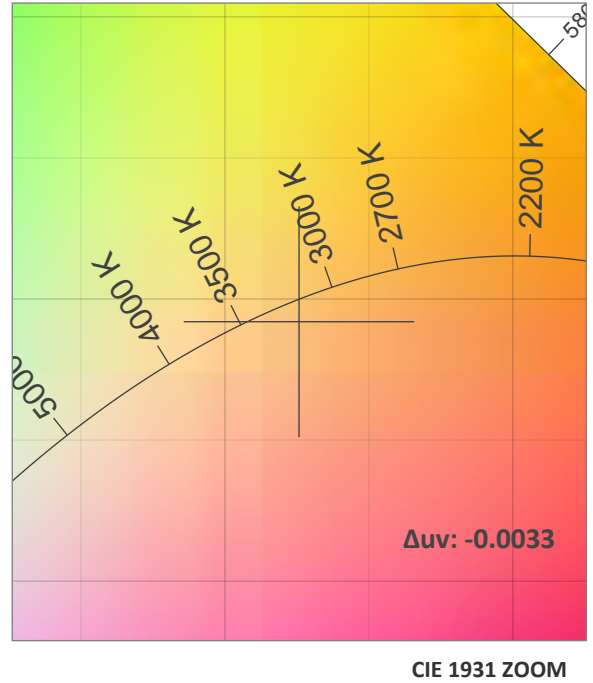
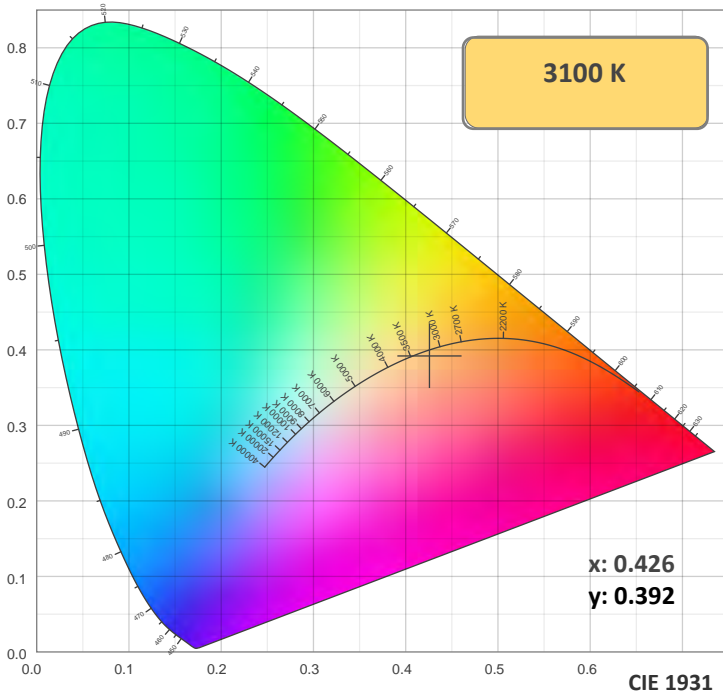
97363 cd

Calculate Center Beam Intensities

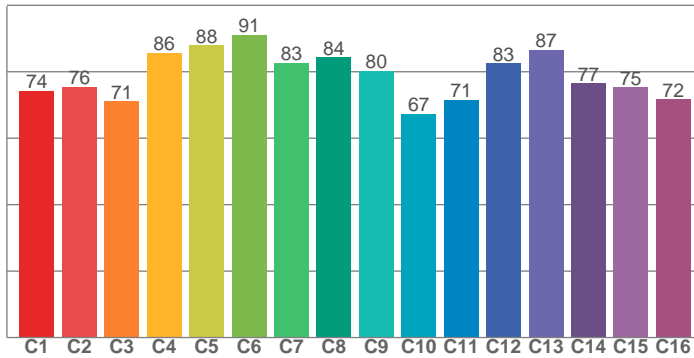
$lux = 97363 / distance(m)^2$

$fc = 97363 / distance(ft)^2$

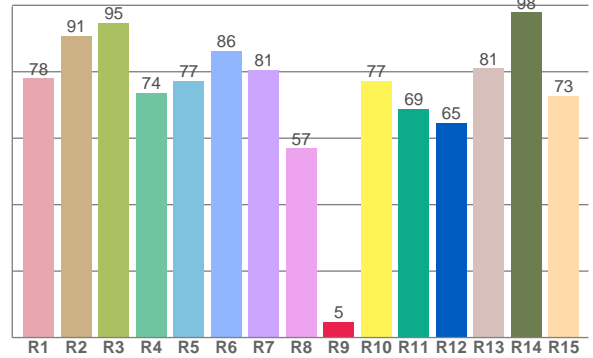
Color Details



TM30: 78.8



CRI: 79.8 (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
78.0	90.8	94.7	73.7	77.3	86.3	80.6	57.1	4.7	77.3	68.9	64.7	81.1	97.9	72.8

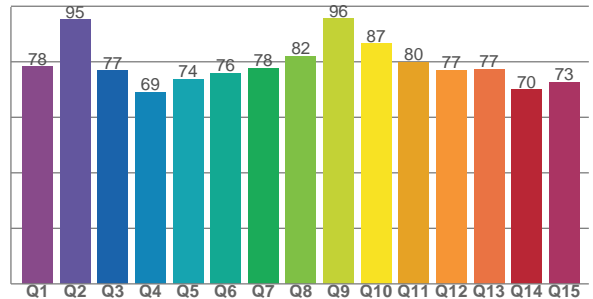
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
74.2	75.5	71.1	85.7	88.0	91.1	82.6	84.3	80.2	67.4	71.5	82.5	86.6	76.6	75.4	71.6

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
78.2	95.3	76.8	69.1	73.7	76.0	77.6	82.1	95.5	86.5	79.8	76.9	77.3	70.0	72.7

CQS: 77.7



Color Parameters

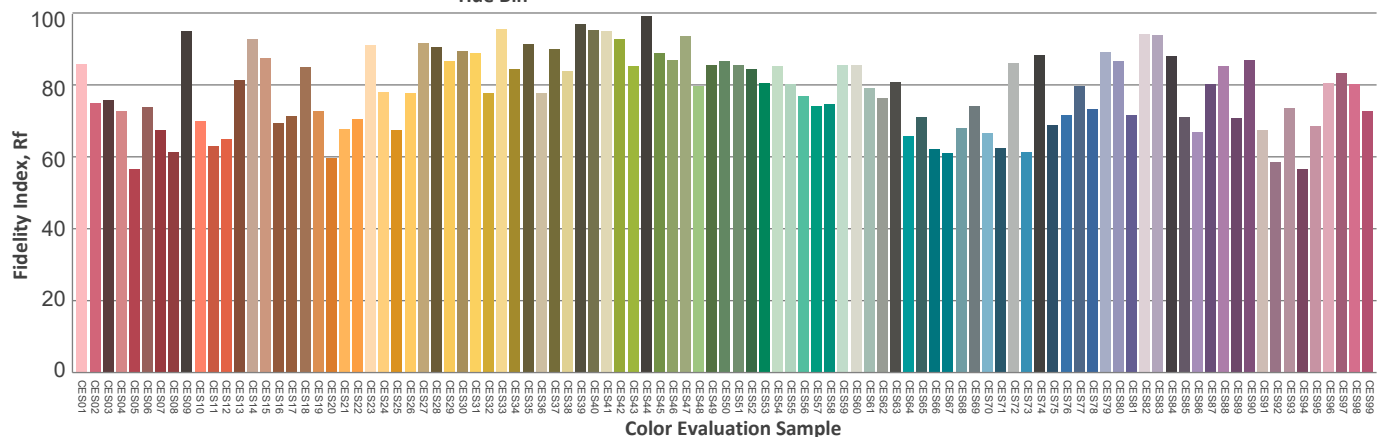
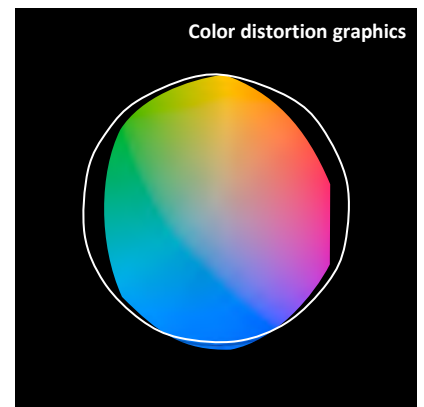
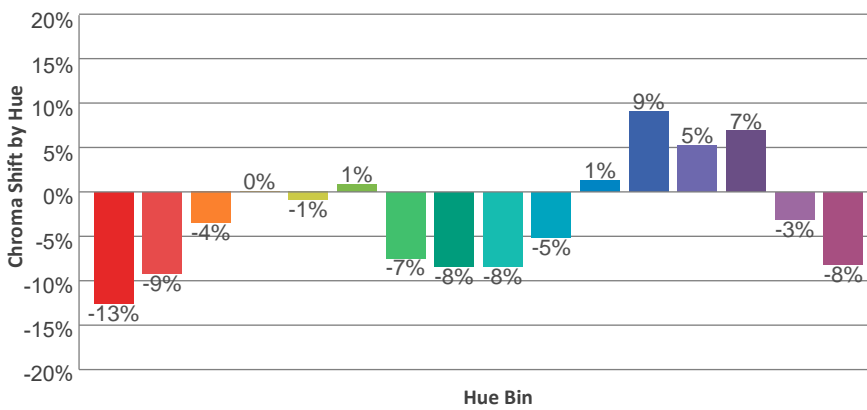
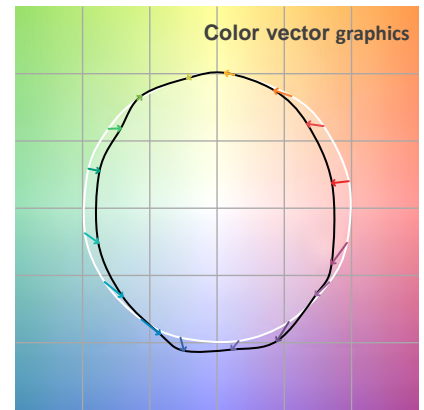
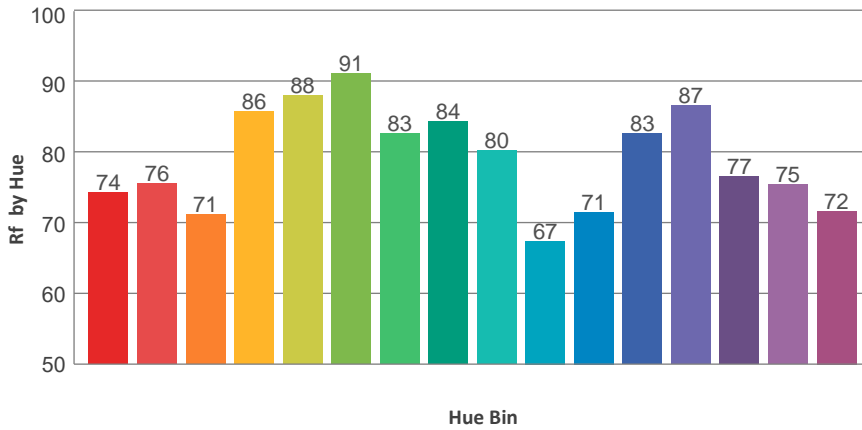
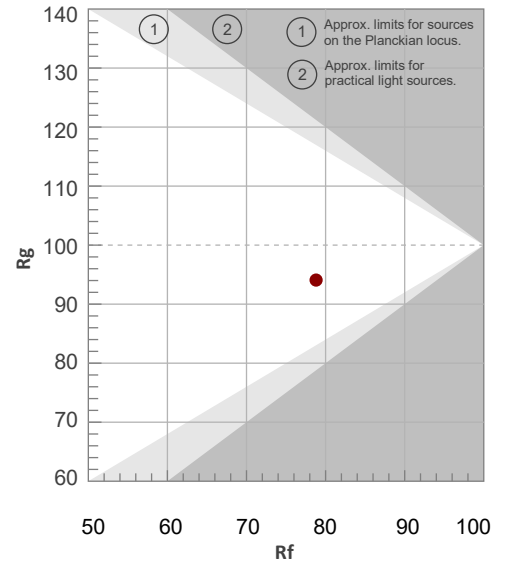
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3100 K	79.8	4.7	78.8	94.1	77.7	0.426	0.392	0.249	0.343	-0.0033

TM30 Details

Rf 78.8
Fidelity Index Rf

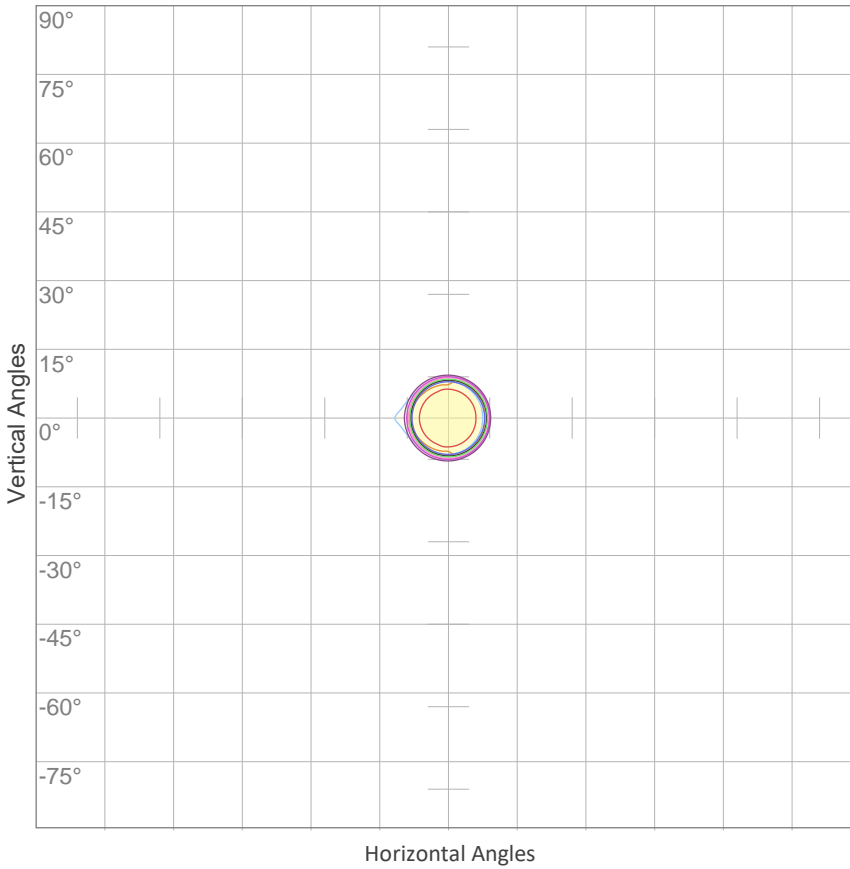
Rg 94.1
Gamut Index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	74	-13%	1%
2	76	-9%	8%
3	71	-4%	13%
4	86	0%	7%
5	88	-1%	3%
6	91	1%	-4%
7	83	-7%	-5%
8	84	-8%	0%
9	80	-8%	9%
10	67	-5%	16%
11	71	1%	18%
12	83	9%	4%
13	87	5%	-6%
14	77	7%	-15%
15	75	-3%	-14%
16	72	-8%	-18%



ISO Diagrams

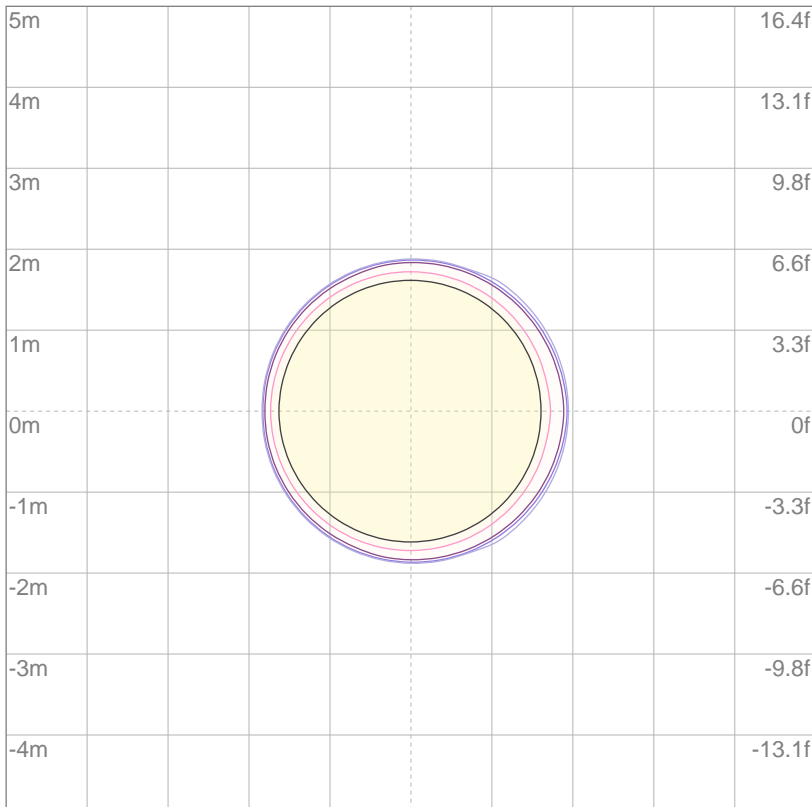
ISO Candela Diagram



10%	9728 cd
20%	19456 cd
30%	29185 cd
40%	38913 cd
50%	48641 cd
60%	58369 cd
70%	68098 cd
80%	77826 cd
90%	87554 cd

Conditions:
 Number of c-planes: 2
 Candela at center: 97282 cd

ISO Lux Diagram



3%	29.2 lx
5%	48.6 lx
10%	97.3 lx
30%	292 lx
50%	486 lx

Conditions:
 Number of c-planes: 2
 Lux at center: 973 lx

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

Mounting Height: 10 meters (33 feet)