



KL PAR FC - WFL

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](#)

Total Lumen Output: 6380 lm

Color Temperature: 2702 K

CRI: 88.1

TLCI: 90

TM30: 91.7

CQS: 86.4

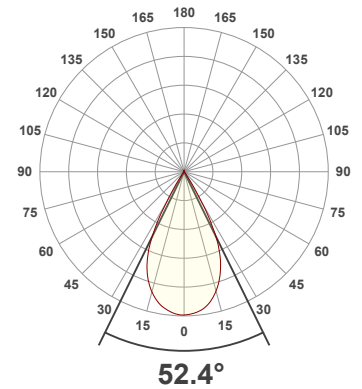
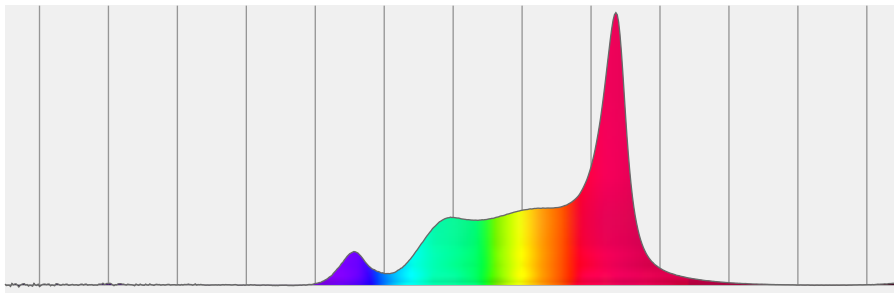
Measurement Date: 7/1/2021

Voltage: 112 V, Current: 1.99 A

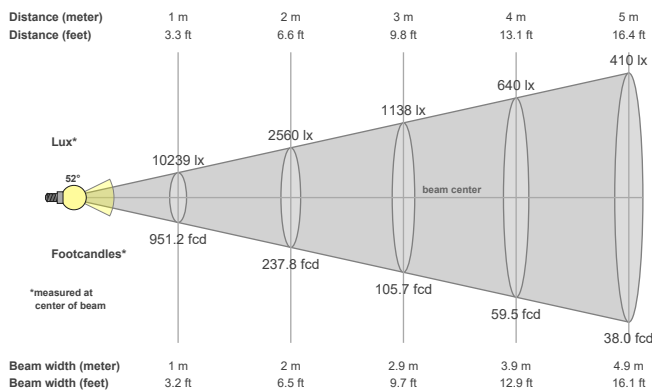
Power: 220.9 W

Efficacy: 29 Lumen/Watt

Spectral distribution
Dominant Wavelength 583



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.4°	66.1°	72.8°

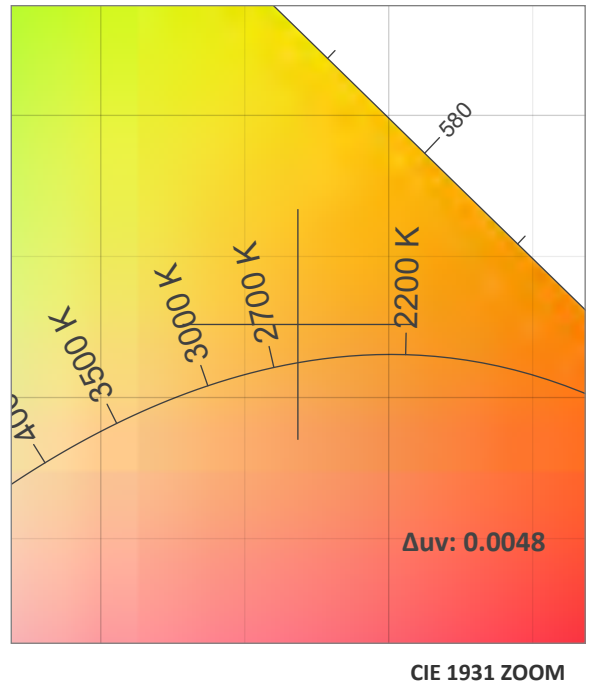
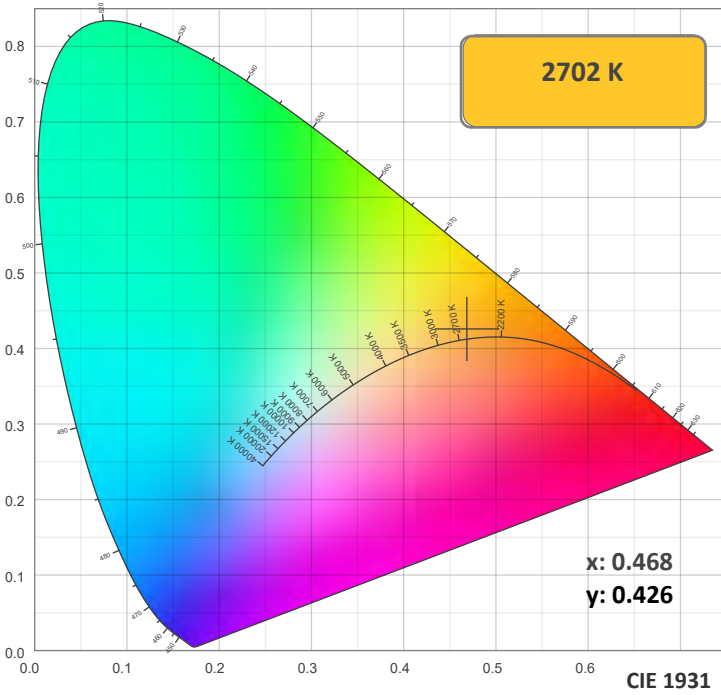
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
10253 cd	99.9%	99.6%

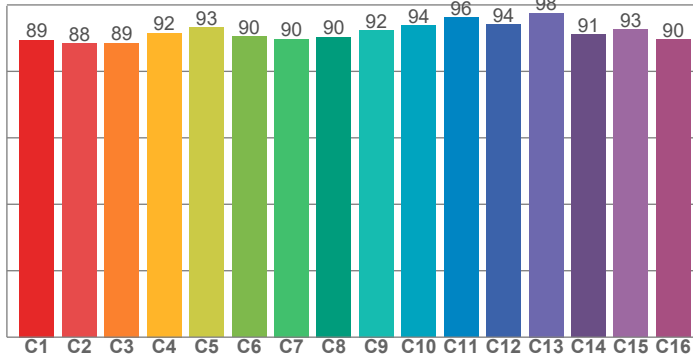
Beam Intensities from 1-20m

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	10239	2560	1138	640	410	284	209	160	126	102	85	71	61	52	46	40	35	32	28	26
FC	951.2	237.8	105.7	59.5	38	26.4	19.4	14.9	11.7	9.5	7.9	6.6	5.6	4.9	4.2	3.7	3.3	2.9	2.6	2.4

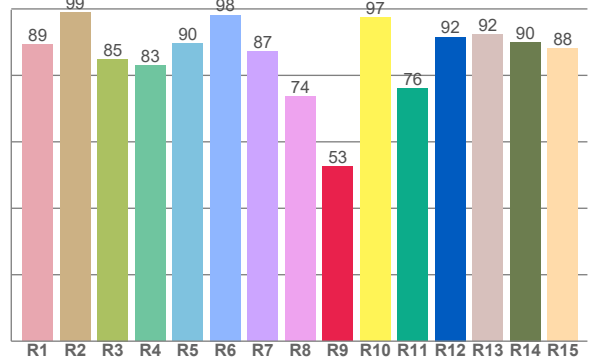
Color Details



TM30: 91.7



CRI: 88.1 (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
89.2	98.9	84.9	82.9	89.7	98.2	87.2	73.6	52.5	97.5	76.0	91.6	92.2	90.0	88.1

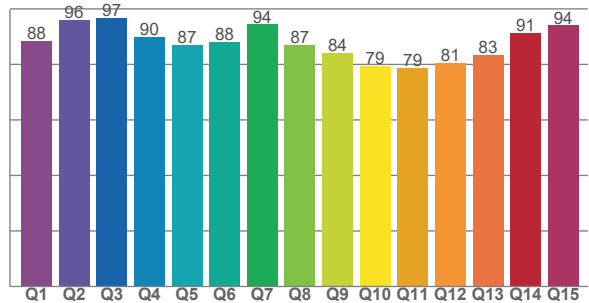
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
89.4	88.5	88.6	91.5	93.2	90.4	89.7	90.4	92.4	93.9	96.3	94.0	97.5	91.2	92.5	89.5

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
88.4	96.0	96.8	89.8	87.1	88.0	94.4	87.1	84.1	79.4	78.7	80.7	83.3	91.4	94.0

CQS: 86.4



Color Parameters

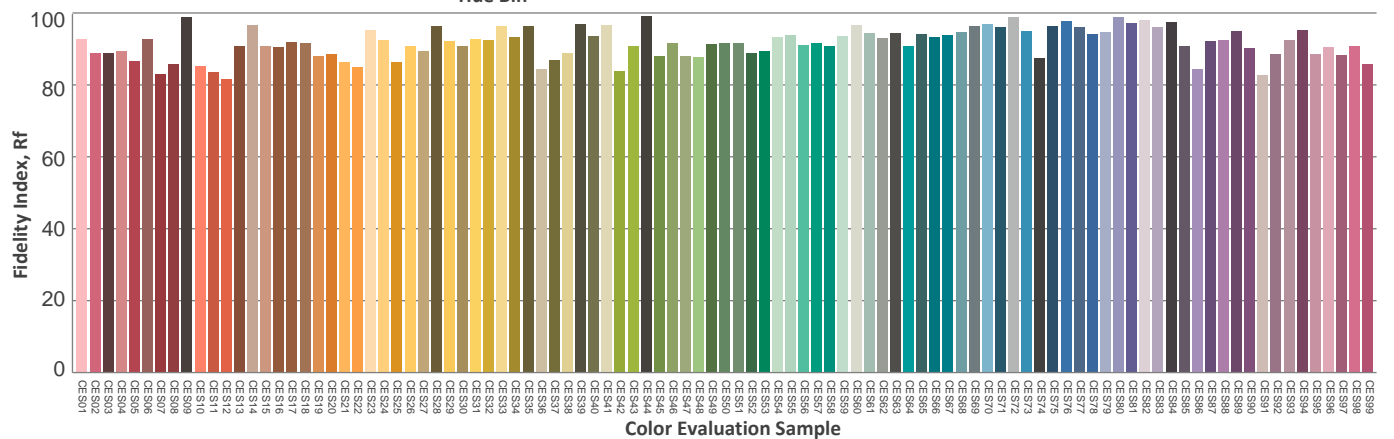
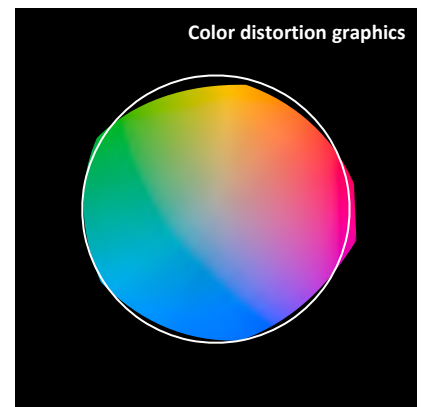
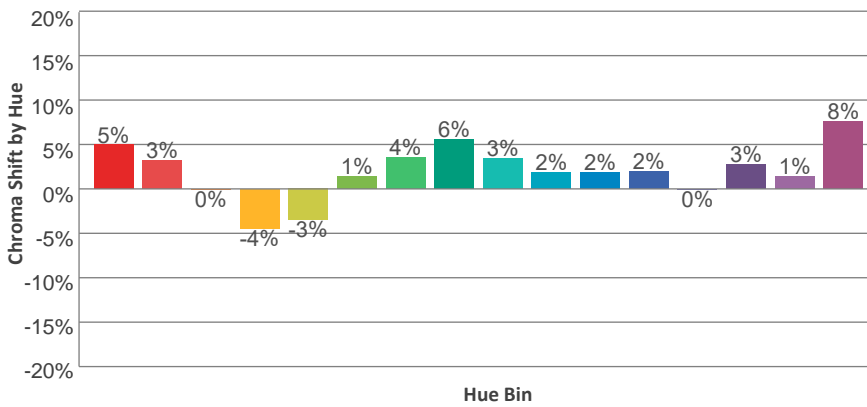
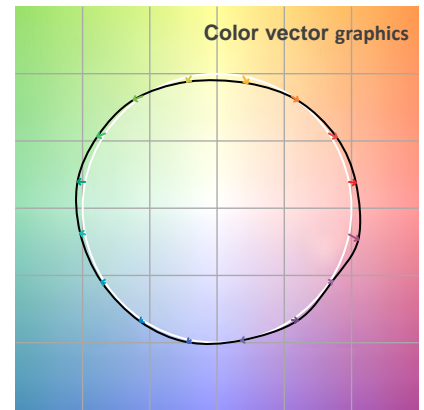
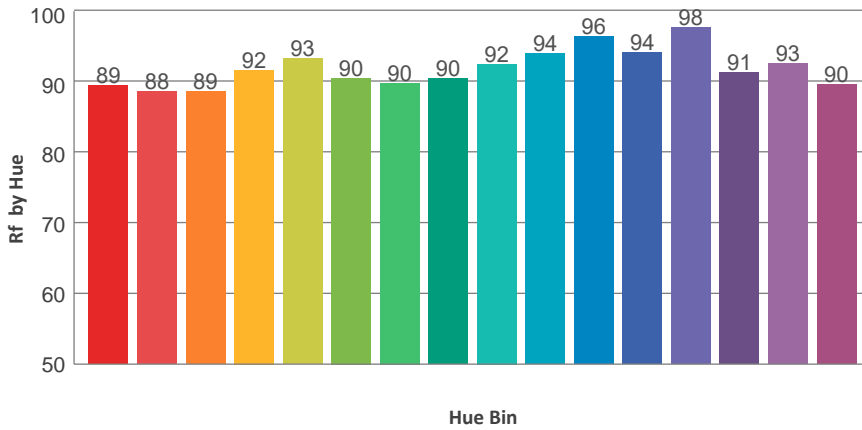
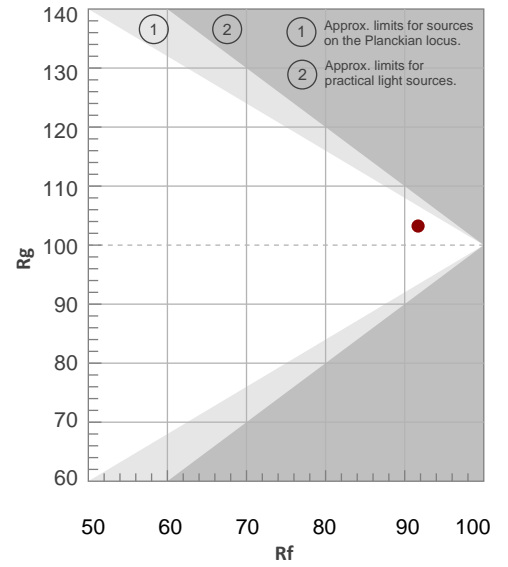
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
2702 K	88.1	52.5	91.7	103.2	86.4	0.468	0.426	0.261	0.356	0.0048

TM30 Details

Rf 91.7
Fidelity Index Rf

Rg 103.2
Gamut Index Rg

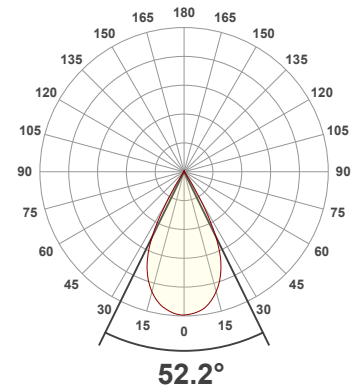
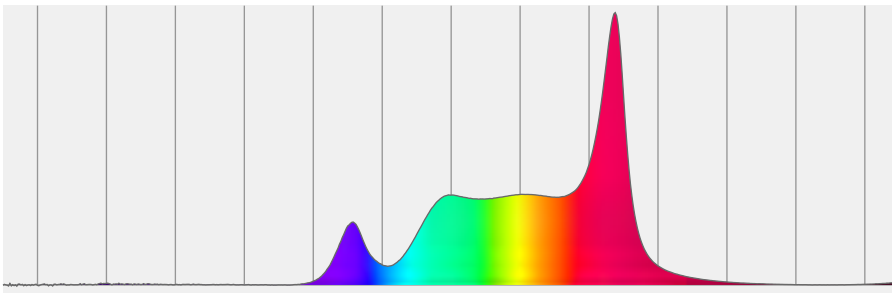
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	89	5%	-2%
2	88	3%	-6%
3	89	0%	-6%
4	92	-4%	-4%
5	93	-3%	3%
6	90	1%	7%
7	90	4%	5%
8	90	6%	1%
9	92	3%	-2%
10	94	2%	-2%
11	96	2%	-1%
12	94	2%	-2%
13	98	0%	-1%
14	91	3%	4%
15	93	1%	3%
16	90	8%	-2%



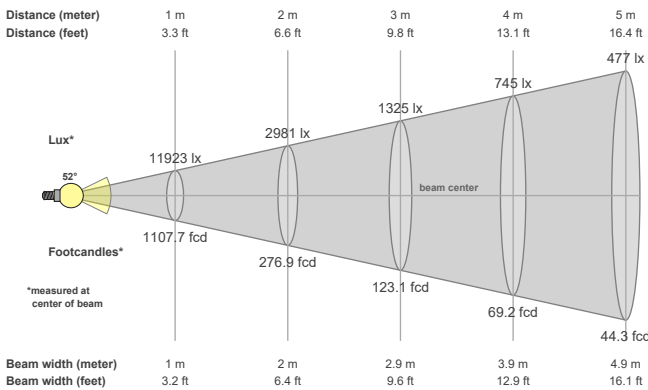
Total Lumen Output: 7507 lm
Color Temperature: 3199 K
CRI: 89.7
TLCI: 94
TM30: 92.7
CQS: 91.2
Measurement Date: 7/1/2021

Voltage: 111 V, Current: 2.15 A
Power: 237.1 W
Efficacy: 32 Lumen/Watt

Spectral distribution
 Dominant Wavelength 581



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.2°	66.1°	73.8°

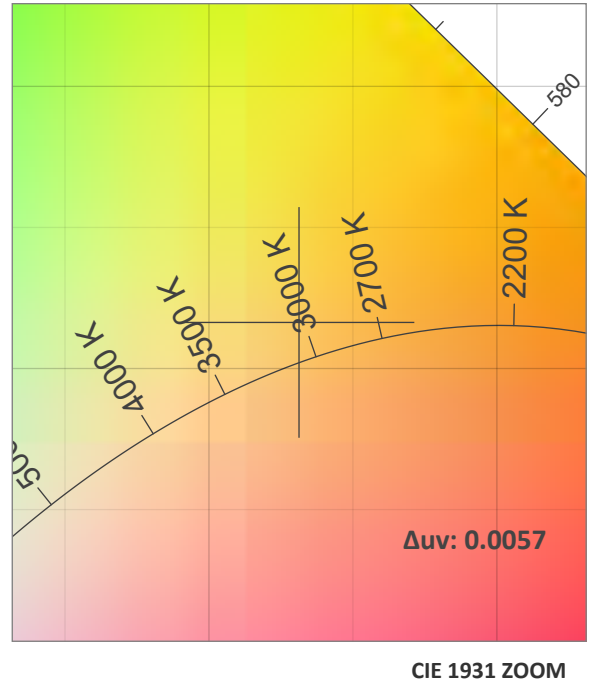
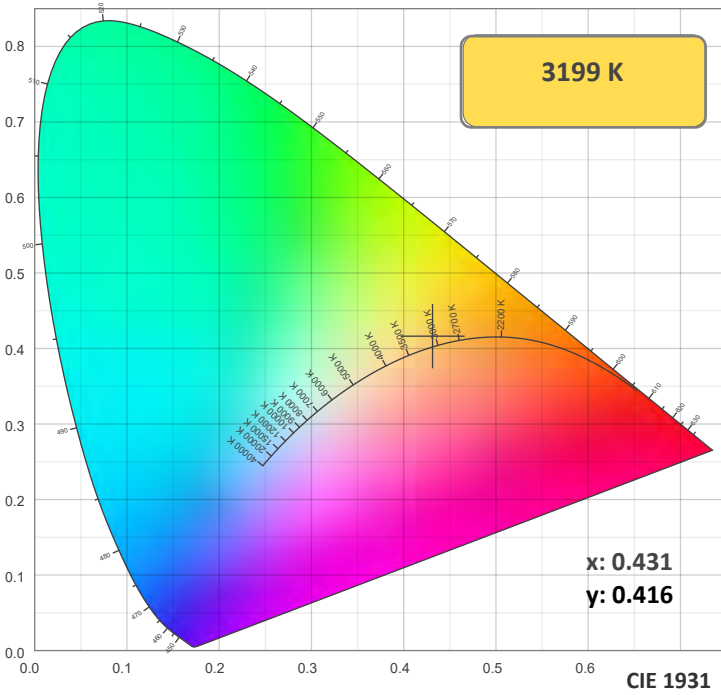
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
11937 cd	99.8%	99.0%

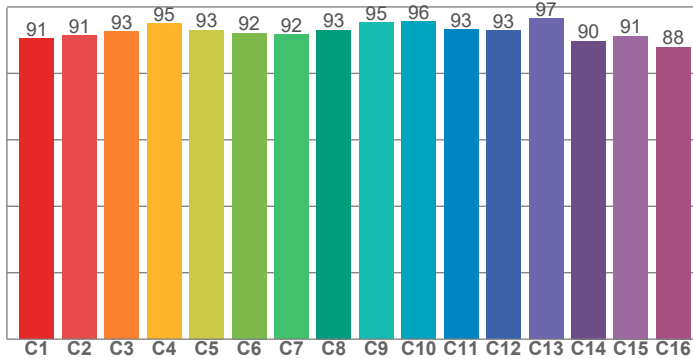
Beam Intensities from 1-20m

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	11923	2981	1325	745	477	331	243	186	147	119	99	83	71	61	53	47	41	37	33	30
FC	1107.7	276.9	123.1	69.2	44.3	30.8	22.6	17.3	13.7	11.1	9.2	7.7	6.6	5.7	4.9	4.3	3.8	3.4	3.1	2.8

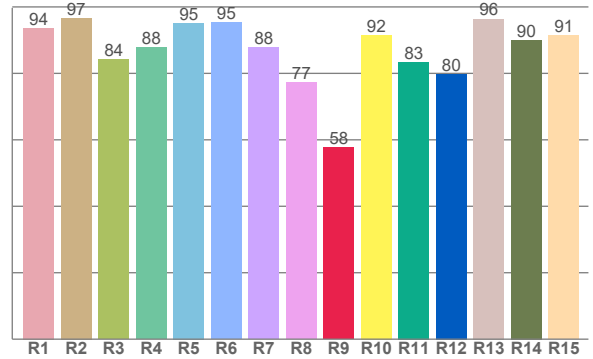
Color Details



TM30: 92.7



CRI: 89.7 (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
93.6	96.7	84.2	87.8	95.1	95.3	87.7	77.3	57.8	91.5	83.4	79.8	96.4	90.0	91.5

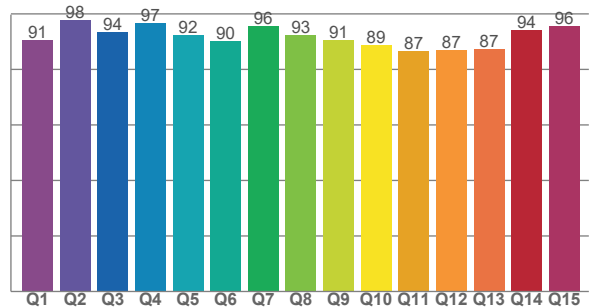
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90.6	91.4	92.6	95.0	93.0	92.2	91.6	93.1	95.3	95.6	93.2	92.9	96.5	89.8	91.3	88.0

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
90.7	97.9	93.5	96.7	92.3	90.3	95.8	92.5	90.8	88.9	86.7	86.9	87.3	94.1	95.7

CQS: 91.2



Color Parameters

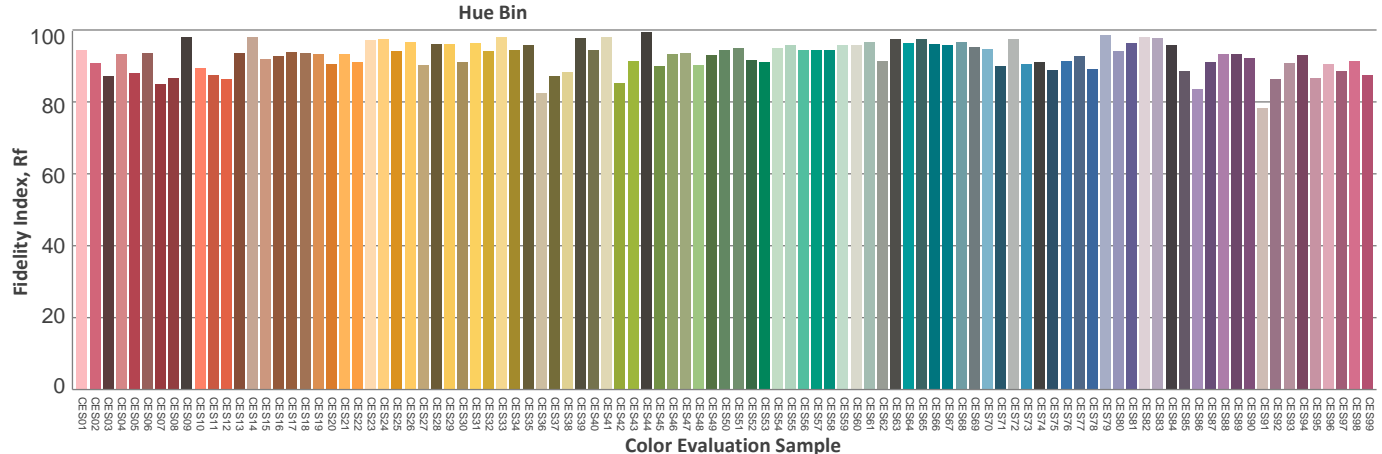
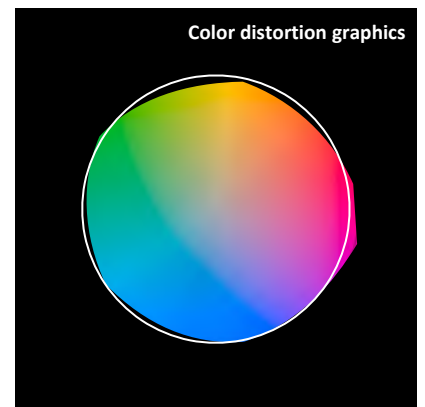
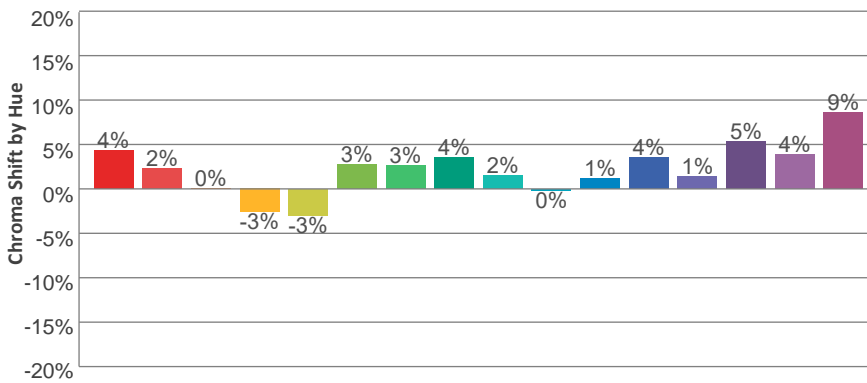
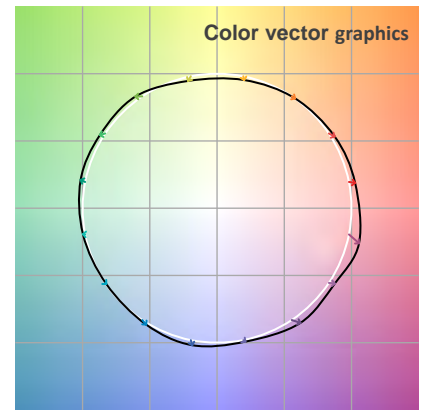
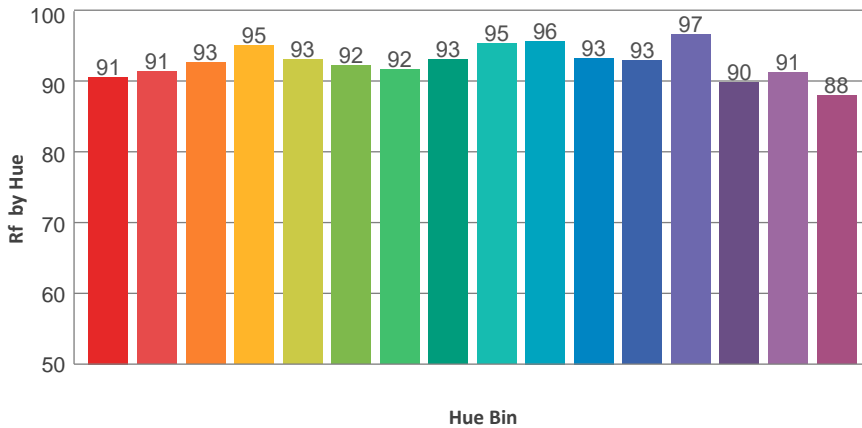
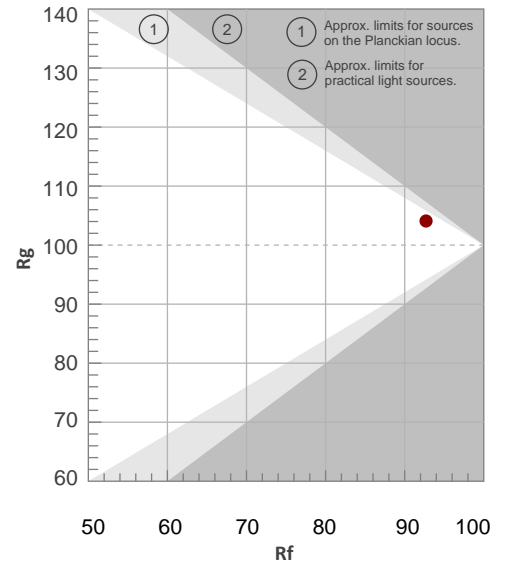
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3199 K	89.7	57.8	92.7	104.1	91.2	0.431	0.416	0.242	0.350	0.0057

TM30 Details

Rf 92.7
Fidelity Index Rf

Rg 104.1
Gamut Index Rg

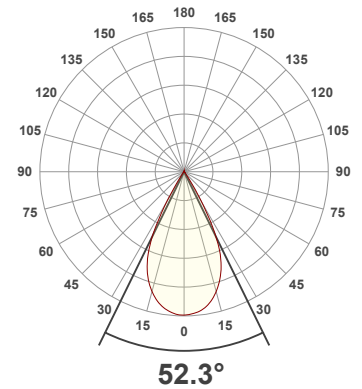
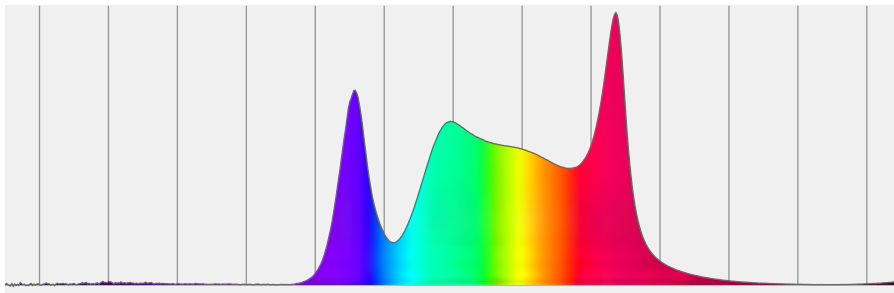
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	91	4%	-2%
2	91	2%	-4%
3	93	0%	-3%
4	95	-3%	-1%
5	93	-3%	3%
6	92	3%	4%
7	92	3%	3%
8	93	4%	-1%
9	95	2%	0%
10	96	0%	1%
11	93	1%	4%
12	93	4%	2%
13	97	1%	1%
14	90	5%	4%
15	91	4%	2%
16	88	9%	-5%



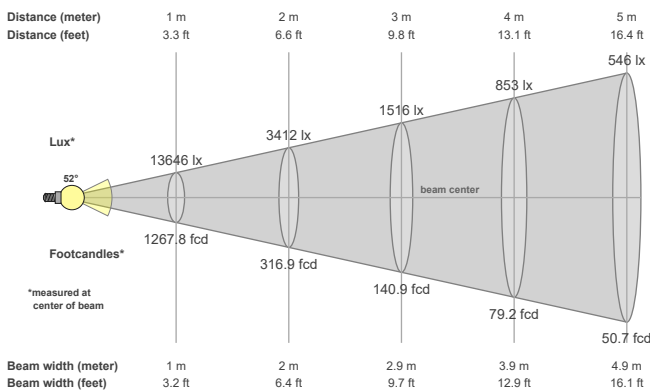
Total Lumen Output: 8653 lm
Color Temperature: 4553 K
CRI: 91.6
TLCI: 94
TM30: 91.4
CQS: 93.4
Measurement Date: 7/1/2021

Voltage: 111 V, Current: 2.29 A
Power: 252.5 W
Efficacy: 34 Lumen/Watt

Spectral distribution
 Dominant Wavelength 576



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.3°	65.6°	74.3°

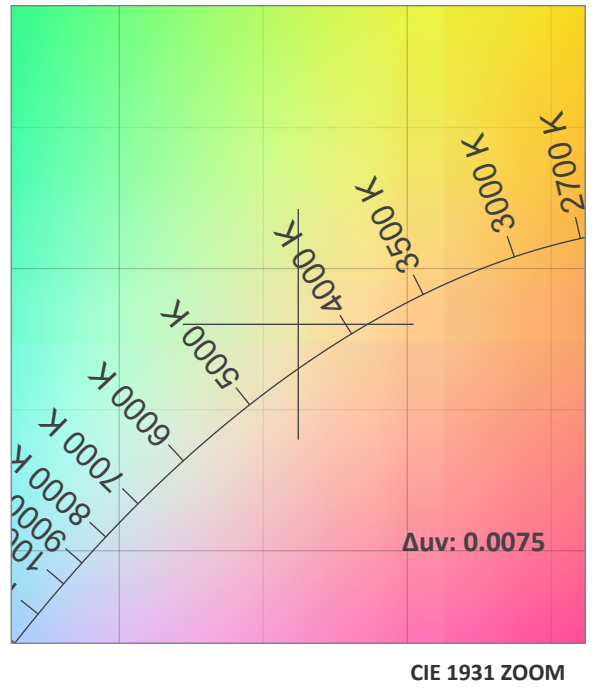
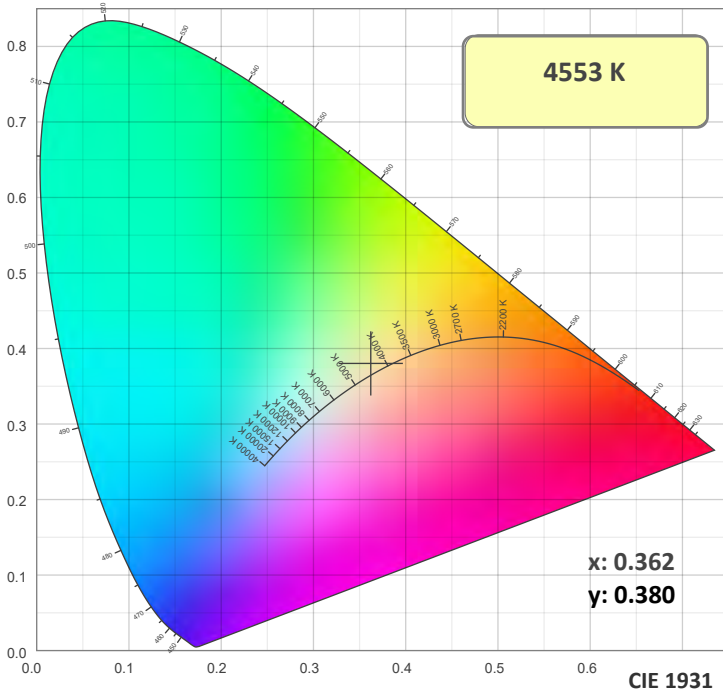
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
13650 cd	99.5%	98.5%

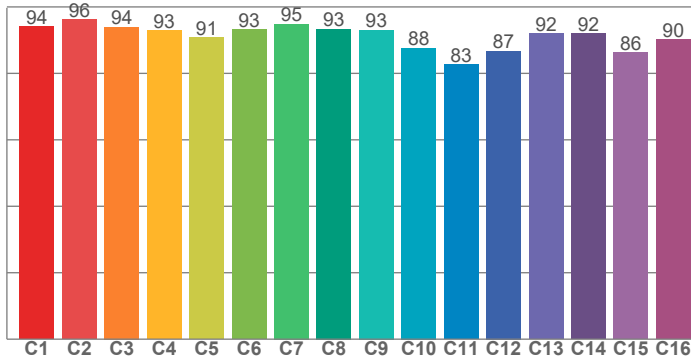
Beam Intensities from 1-20m

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	13646	3412	1516	853	546	379	278	213	168	136	113	95	81	70	61	53	47	42	38	34
FC	1267.8	316.9	140.9	79.2	50.7	35.2	25.9	19.8	15.7	12.7	10.5	8.8	7.5	6.5	5.6	5	4.4	3.9	3.5	3.2

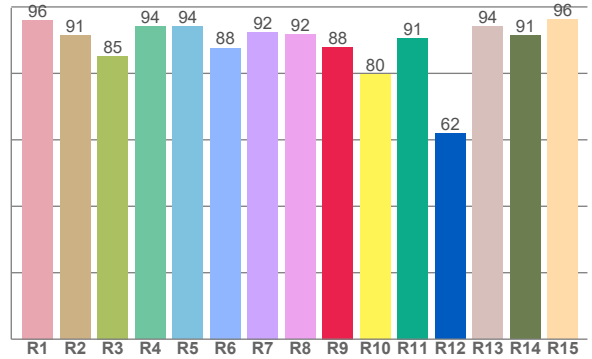
Color Details



TM30: 91.4



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
96.1	91.4	85.2	94.1	94.1	87.7	92.5	91.8	87.9	79.8	90.6	61.9	94.0	91.4	96.2

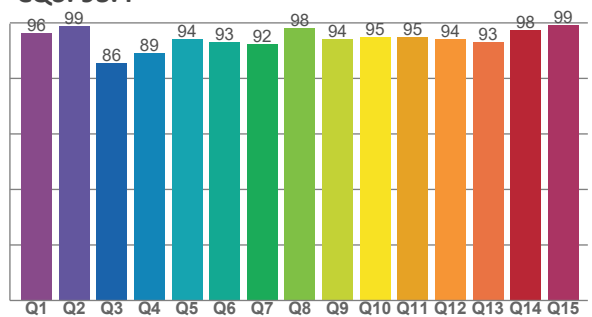
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
94.2	96.2	93.9	93.0	90.9	93.3	94.9	93.3	93.0	87.6	82.6	86.7	92.0	92.0	86.2	90.2

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
96.4	98.9	85.6	89.0	94.3	93.0	92.5	98.2	94.2	94.8	94.8	94.2	93.3	97.6	99.2

CQS: 93.4



Color Parameters

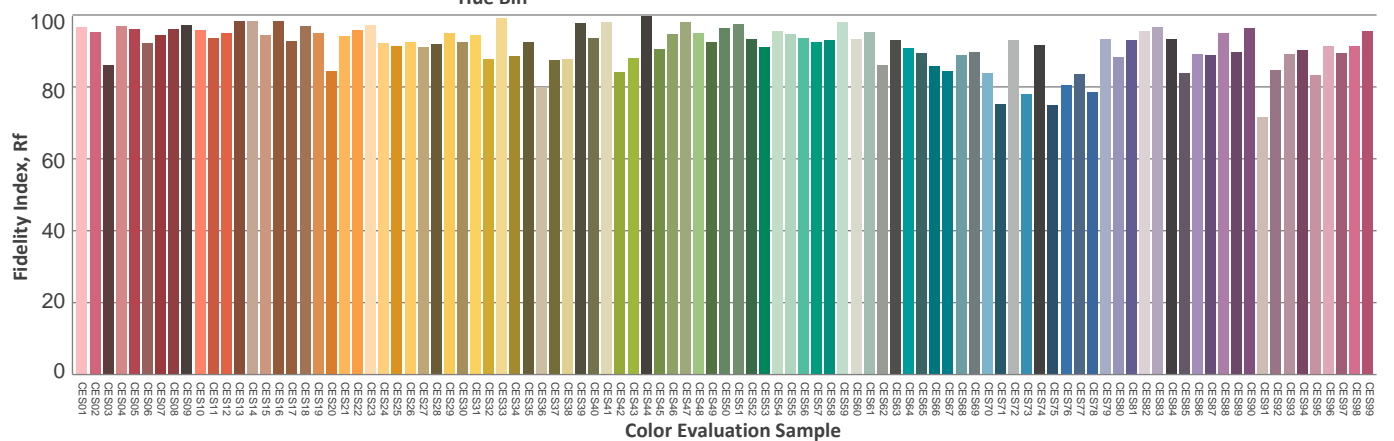
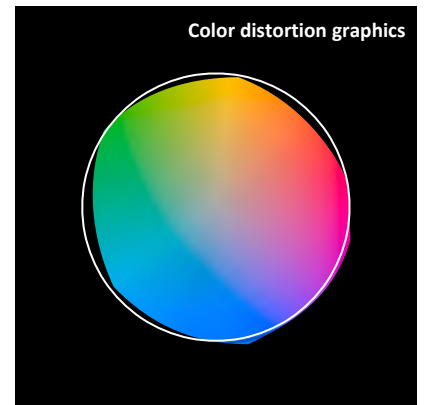
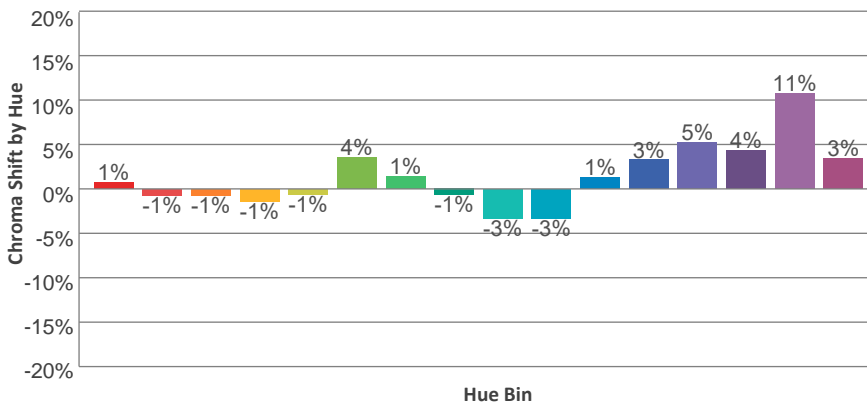
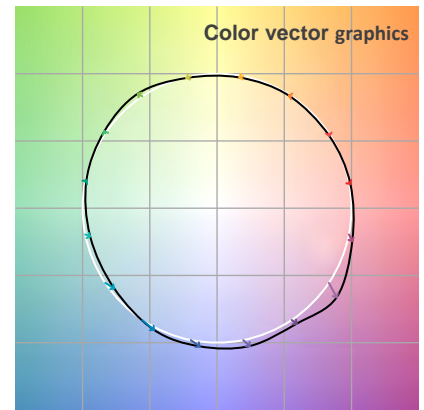
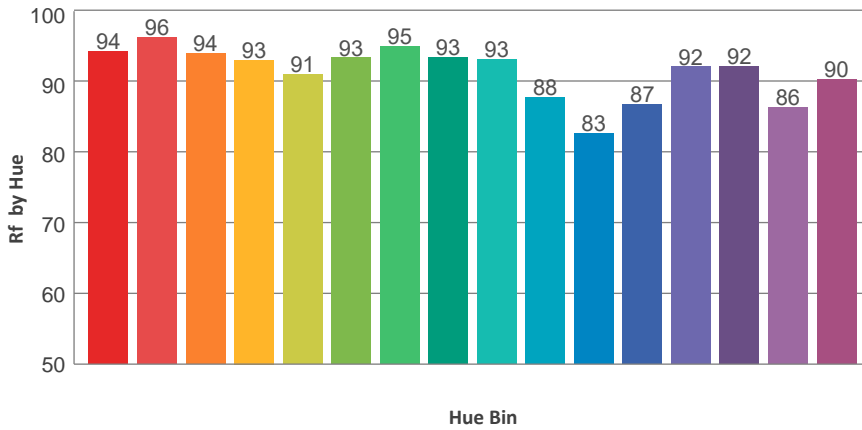
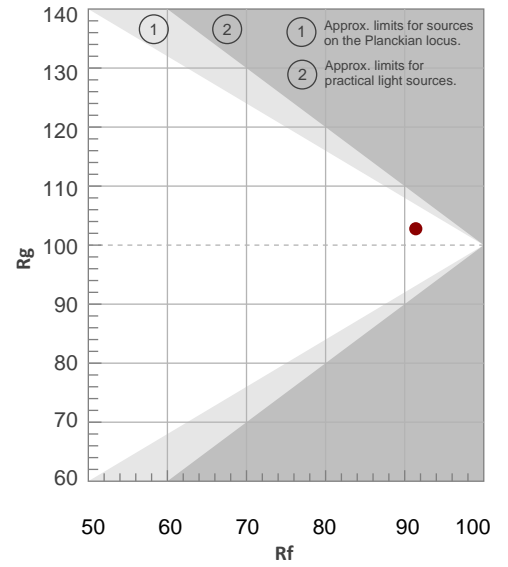
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
4553 K	91.6	87.9	91.4	102.8	93.4	0.362	0.380	0.212	0.334	0.0075

TM30 Details

Rf 91.4
Fidelity Index Rf

Rg 102.8
Gamut Index Rg

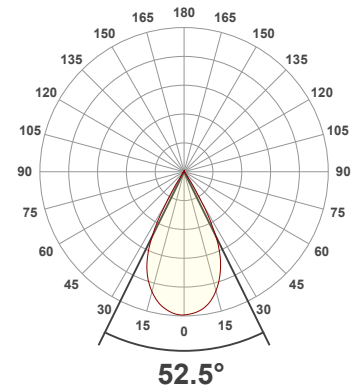
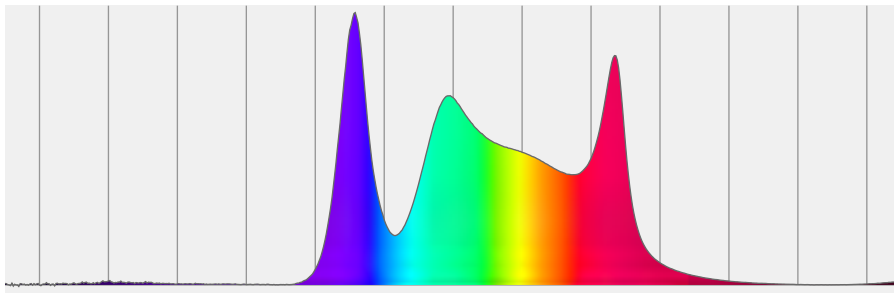
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	94	1%	-2%
2	96	-1%	-2%
3	94	-1%	2%
4	93	-1%	3%
5	91	-1%	4%
6	93	4%	2%
7	95	1%	-1%
8	93	-1%	-1%
9	93	-3%	2%
10	88	-3%	7%
11	83	1%	11%
12	87	3%	7%
13	92	5%	4%
14	92	4%	2%
15	86	11%	-6%
16	90	3%	-4%



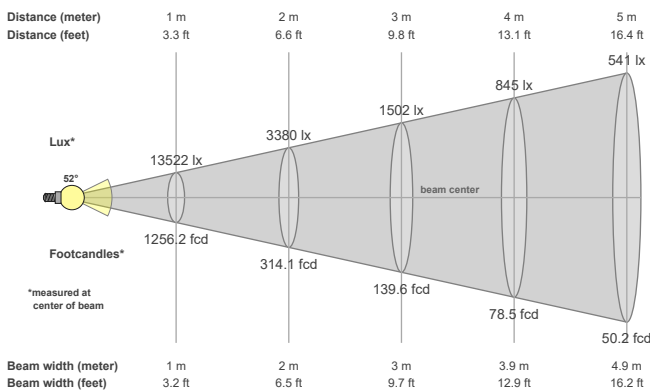
Total Lumen Output: 8581 lm
Color Temperature: 5641 K
CRI: 91.3
TLCI: 94
TM30: 90.5
CQS: 92.5
Measurement Date: 7/1/2021

Voltage: 111 V, Current: 2.30 A
Power: 252.4 W
Efficacy: 34 Lumen/Watt

Spectral distribution
 Dominant Wavelength 571



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.5°	66.4°	73.9°

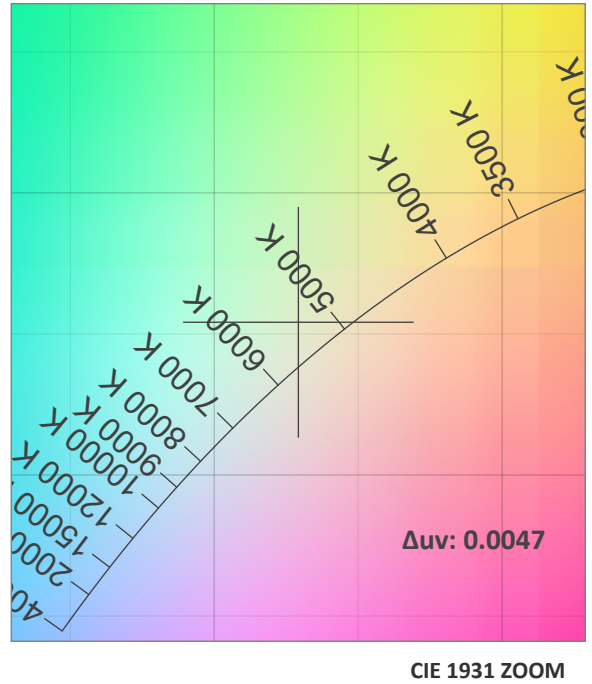
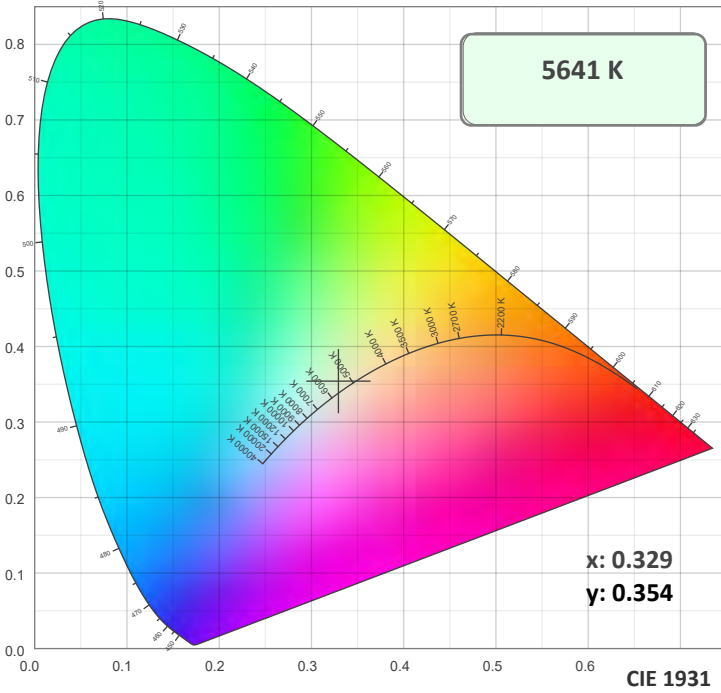
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
13545 cd	99.7%	98.9%

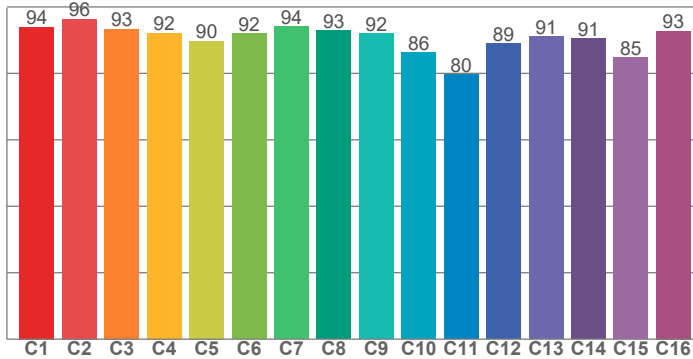
Beam Intensities from 1-20m

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	13522	3380	1502	845	541	376	276	211	167	135	112	94	80	69	60	53	47	42	37	34
FC	1256.2	314.1	139.6	78.5	50.2	34.9	25.6	19.6	15.5	12.6	10.4	8.7	7.4	6.4	5.6	4.9	4.3	3.9	3.5	3.1

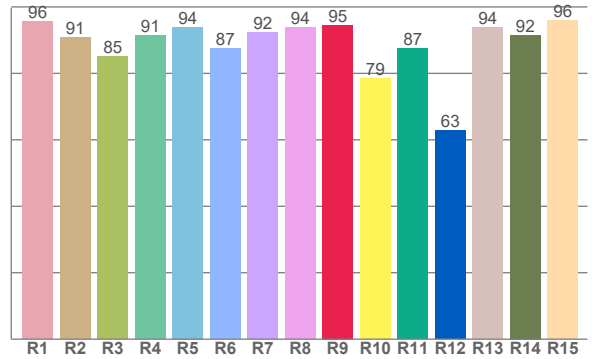
Color Details



TM30: 90.5



CRI: 91.3 (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
95.7	90.8	85.1	91.4	94.0	87.5	92.3	93.7	94.6	78.6	87.4	62.9	93.9	91.5	95.9

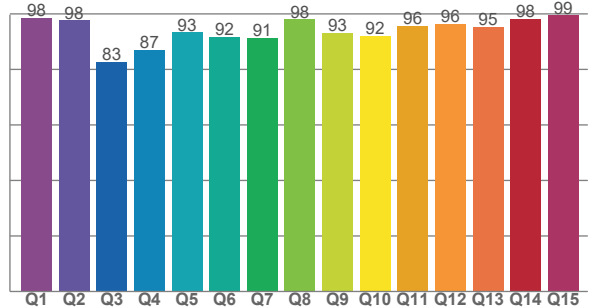
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
94.0	96.3	93.3	92.2	89.8	92.1	94.1	92.9	92.1	86.3	79.6	89.0	91.2	90.6	84.7	92.7

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
98.5	97.7	82.8	86.9	93.3	91.7	91.2	98.0	93.2	92.0	95.6	96.2	95.4	98.2	99.5

CQS: 92.5



Color Parameters

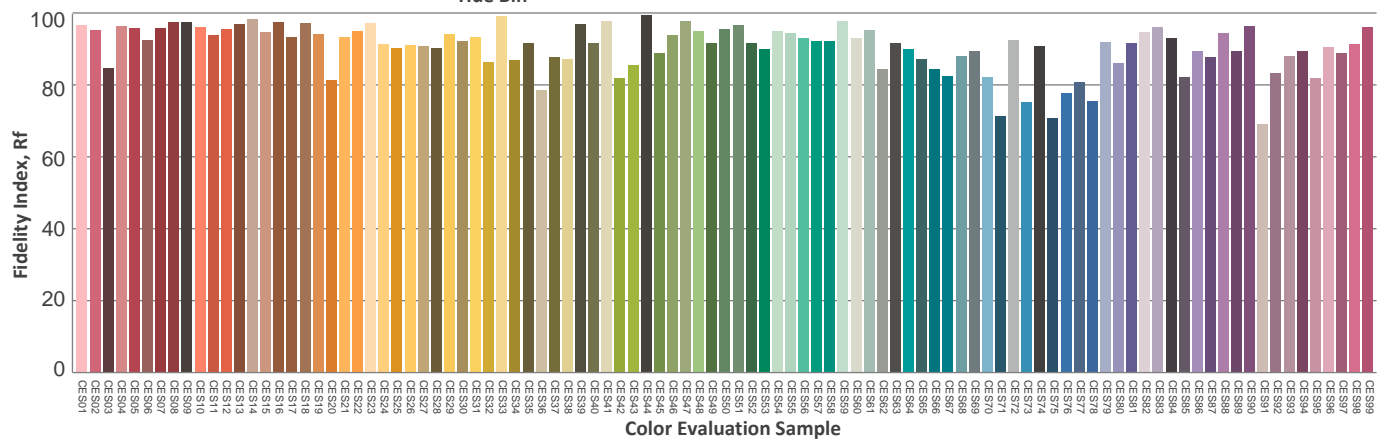
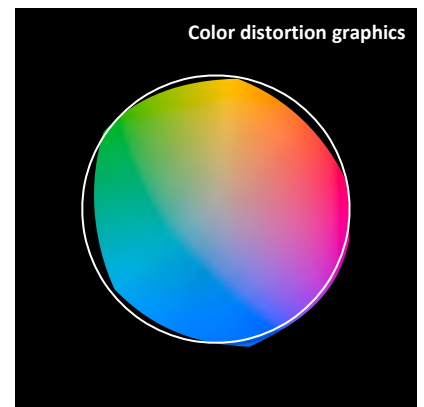
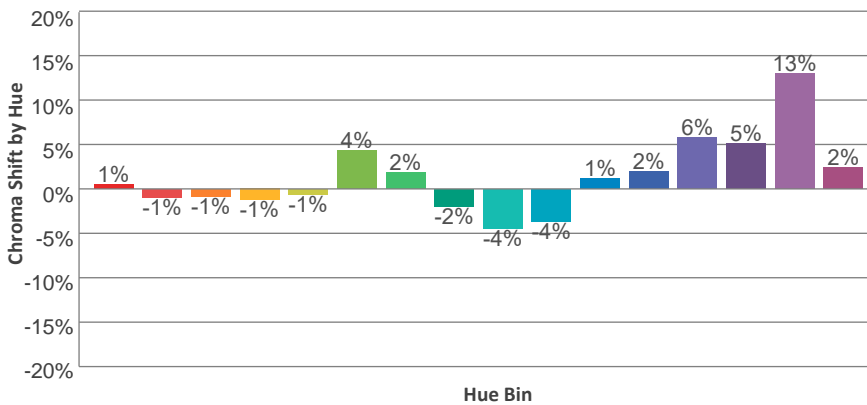
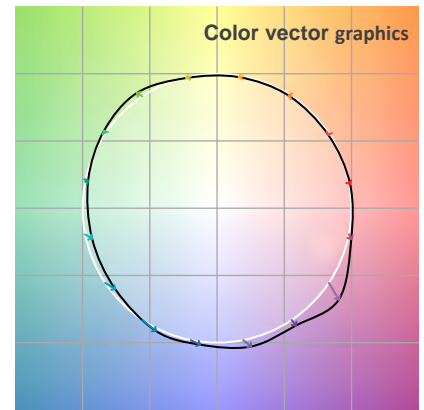
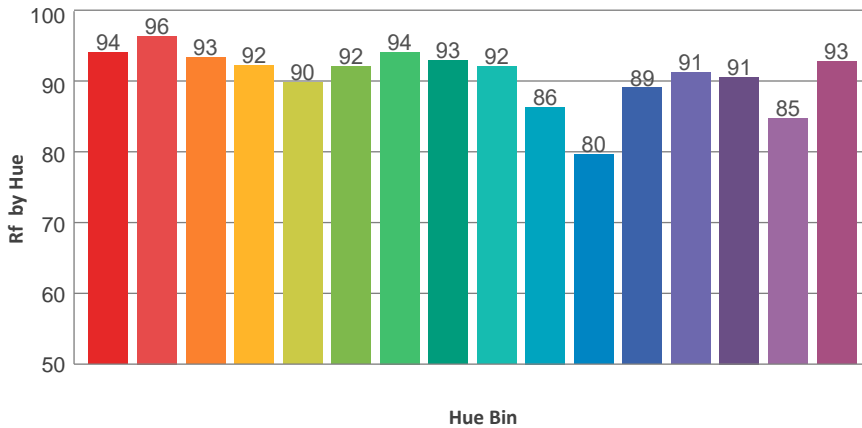
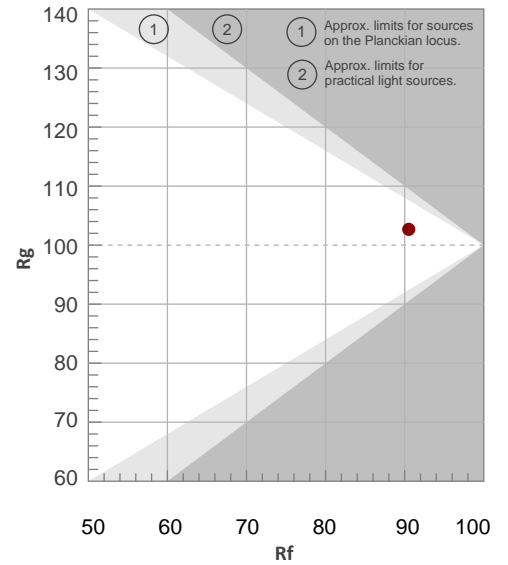
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5641 K	91.3	94.6	90.5	102.7	92.5	0.329	0.354	0.200	0.322	0.0047

TM30 Details

Rf 90.5
Fidelity Index Rf

Rg 102.7
Gamut Index Rg

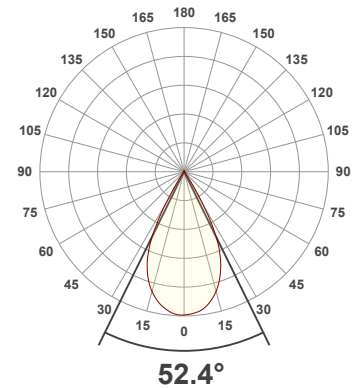
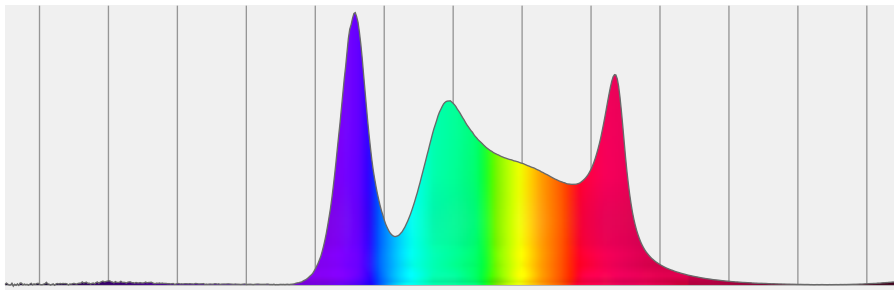
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	94	1%	-2%
2	96	-1%	-1%
3	93	-1%	2%
4	92	-1%	3%
5	90	-1%	3%
6	92	4%	2%
7	94	2%	-1%
8	93	-2%	-1%
9	92	-4%	4%
10	86	-4%	8%
11	80	1%	13%
12	89	2%	7%
13	91	6%	5%
14	91	5%	0%
15	85	13%	-6%
16	93	2%	-3%



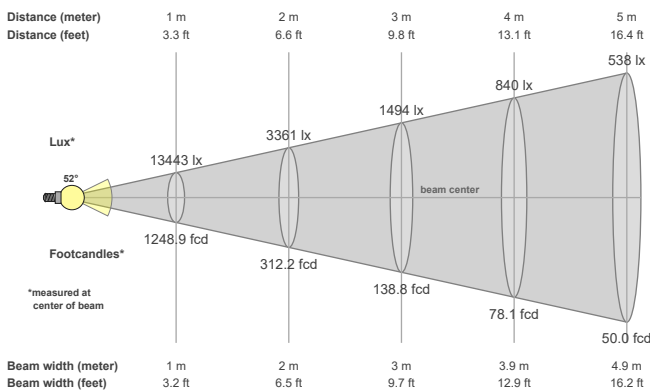
Total Lumen Output: 8597 lm
Color Temperature: 5990 K
CRI: 91.3
TLCI: 94
TM30: 90.4
CQS: 92.6
Measurement Date: 7/1/2021

Voltage: 112 V, Current: 2.27 A
Power: 252.4 W
Efficacy: 34 Lumen/Watt

Spectral distribution
 Dominant Wavelength 568



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.4°	66.4°	74.1°

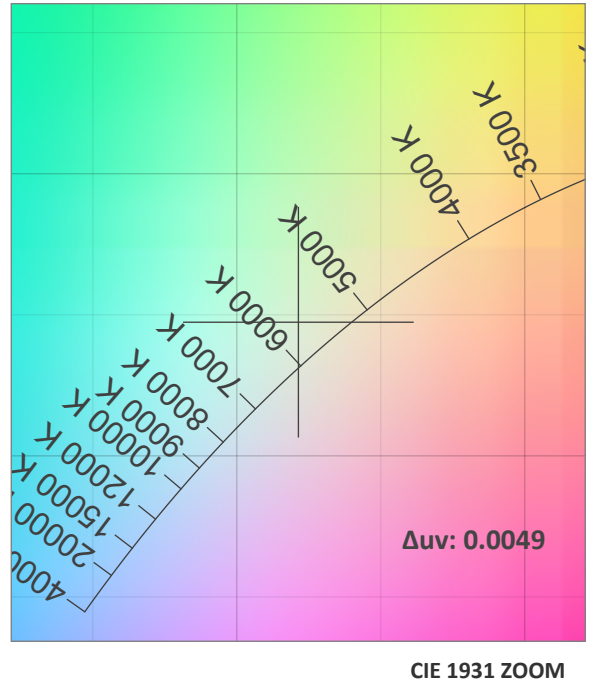
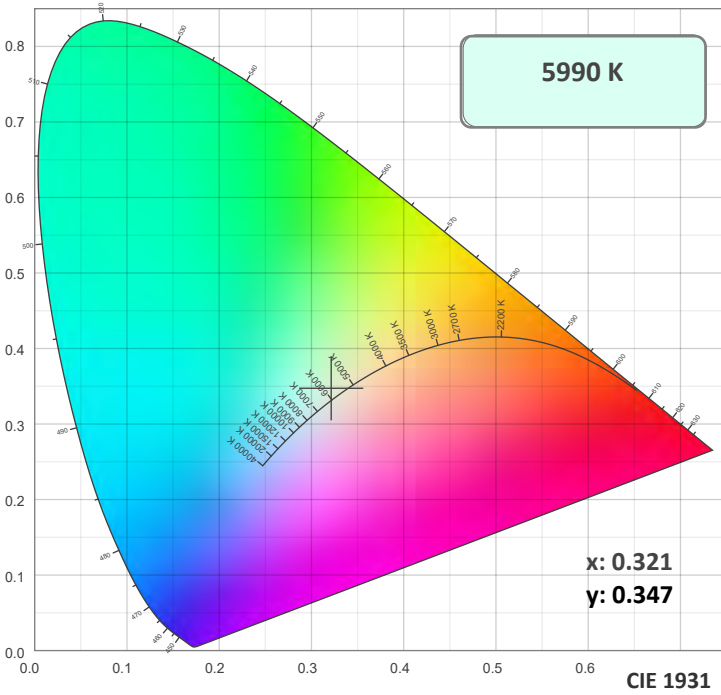
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
13464 cd	99.4%	98.3%

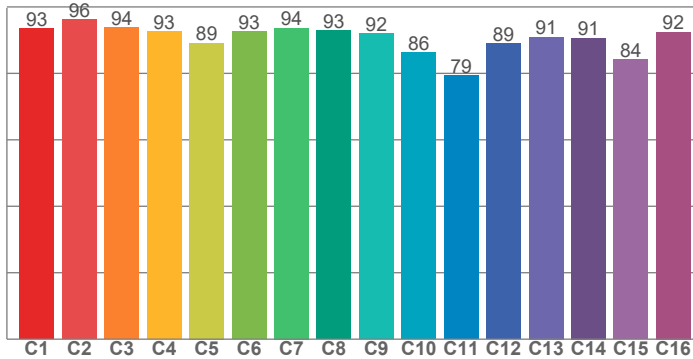
Beam Intensities from 1-20m

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	13443	3361	1494	840	538	373	274	210	166	134	111	93	80	69	60	53	47	41	37	34
FC	1248.9	312.2	138.8	78.1	50	34.7	25.5	19.5	15.4	12.5	10.3	8.7	7.4	6.4	5.6	4.9	4.3	3.9	3.5	3.1

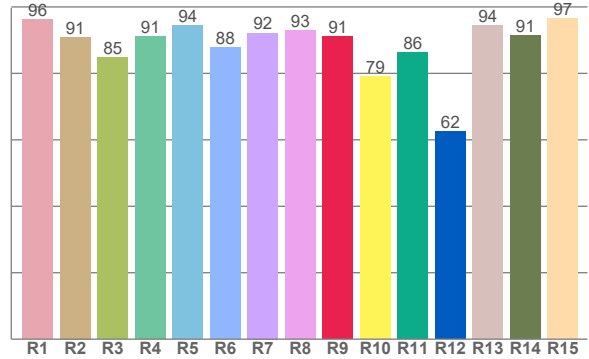
Color Details



TM30: 90.4



CRI: 91.3 (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
96.3	91.0	84.8	91.1	94.5	87.8	92.2	92.8	91.1	79.1	86.3	62.4	94.4	91.4	96.5

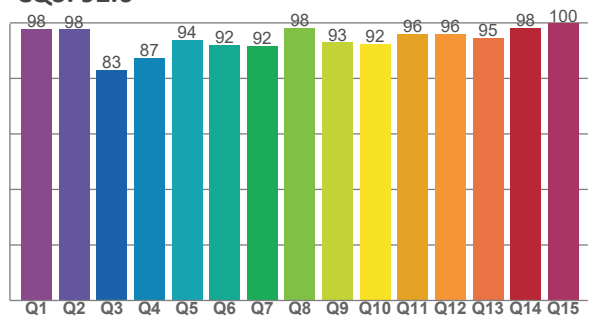
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93.5	96.2	93.8	92.6	89.1	92.7	93.6	92.8	92.0	86.4	79.4	88.9	90.9	90.6	84.2	92.5

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
97.7	97.6	83.0	87.2	93.8	92.0	91.6	98.1	93.0	92.3	96.0	96.0	94.6	98.3	99.8

CQS: 92.6



Color Parameters

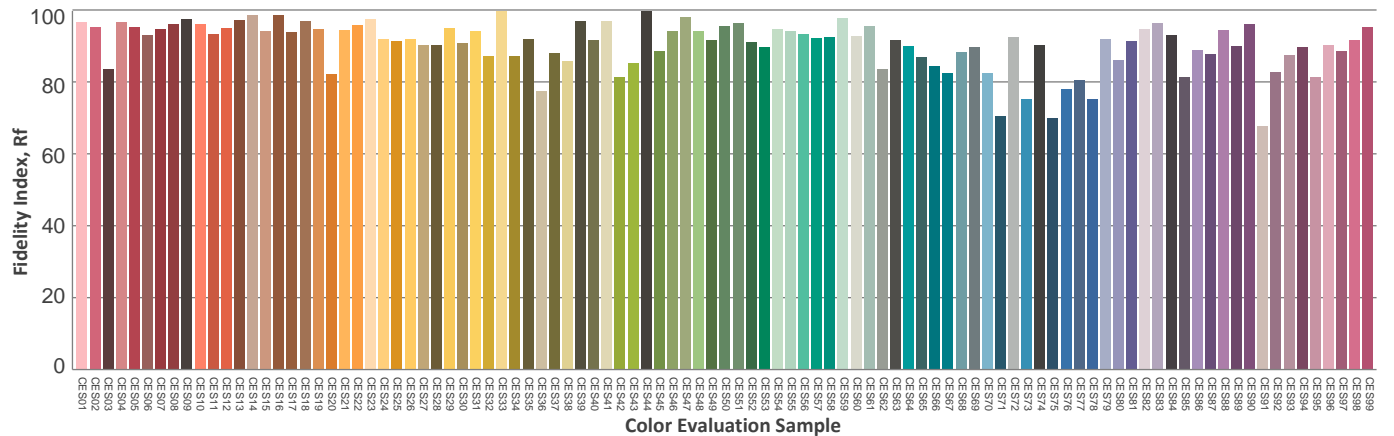
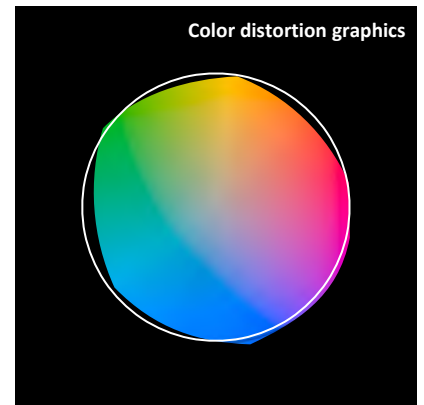
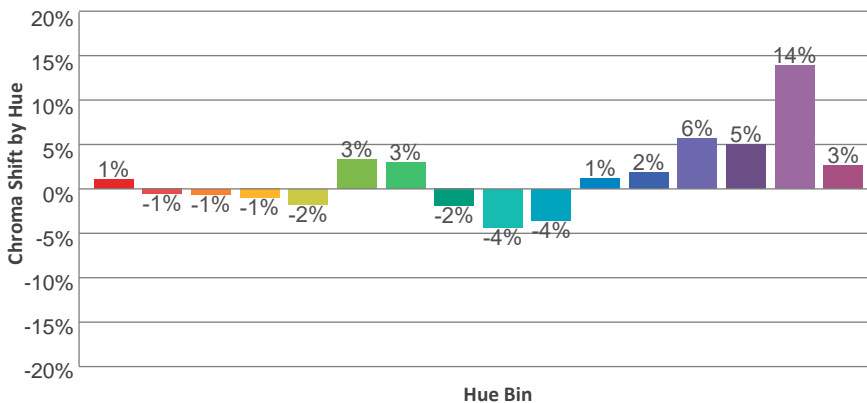
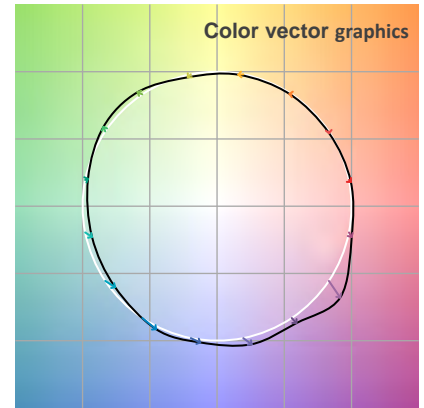
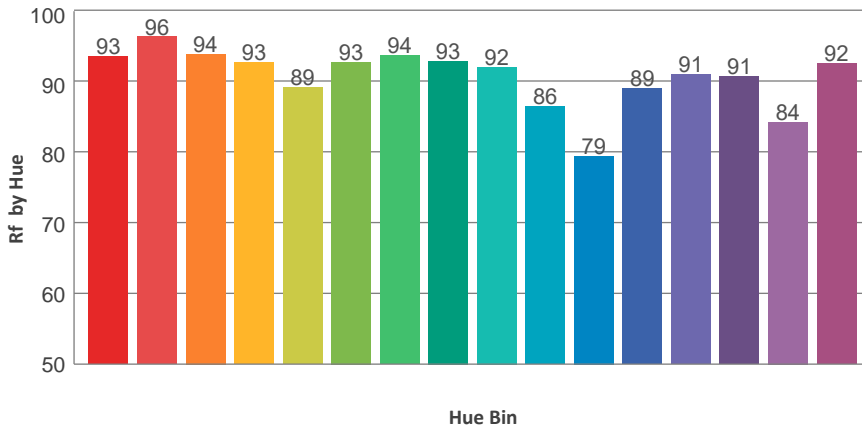
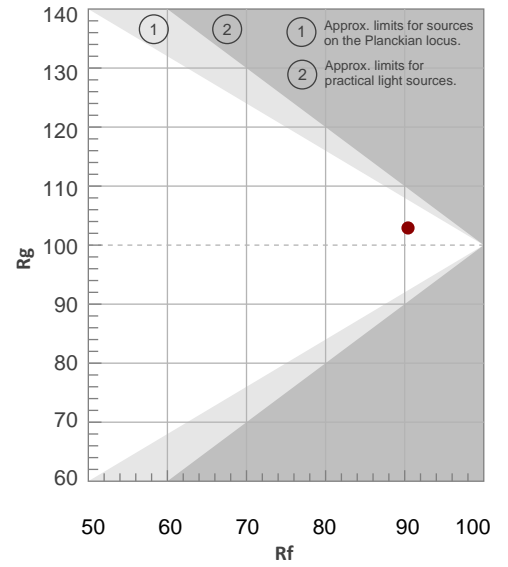
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
5990 K	91.3	91.1	90.4	102.9	92.6	0.321	0.347	0.197	0.319	0.0049

TM30 Details

Rf 90.4
Fidelity Index Rf

Rg 102.9
Gamut Index Rg

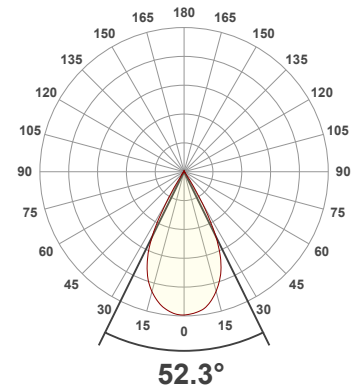
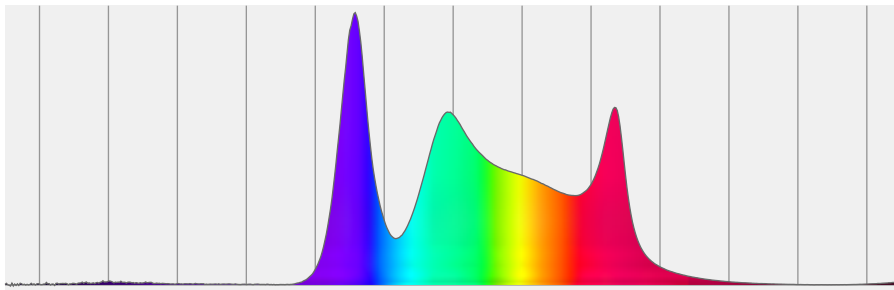
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	93	1%	-2%
2	96	-1%	-1%
3	94	-1%	2%
4	93	-1%	4%
5	89	-2%	3%
6	93	3%	2%
7	94	3%	-2%
8	93	-2%	-1%
9	92	-4%	4%
10	86	-4%	8%
11	79	1%	13%
12	89	2%	7%
13	91	6%	5%
14	91	5%	1%
15	84	14%	-6%
16	92	3%	-3%



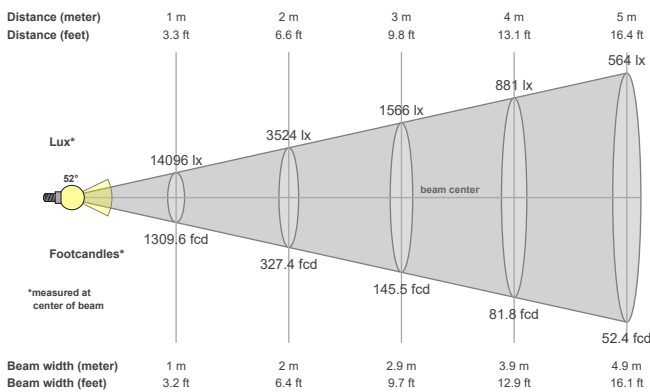
Total Lumen Output: 8966 lm
Color Temperature: 6512 K
CRI: 91.3
TLCI: 94
TM30: 90.0
CQS: 92.3
Measurement Date: 7/1/2021

Voltage: 111 V, Current: 2.48 A
Power: 273.1 W
Efficacy: 33 Lumen/Watt

Spectral distribution
 Dominant Wavelength 544



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.3°	66.3°	74°

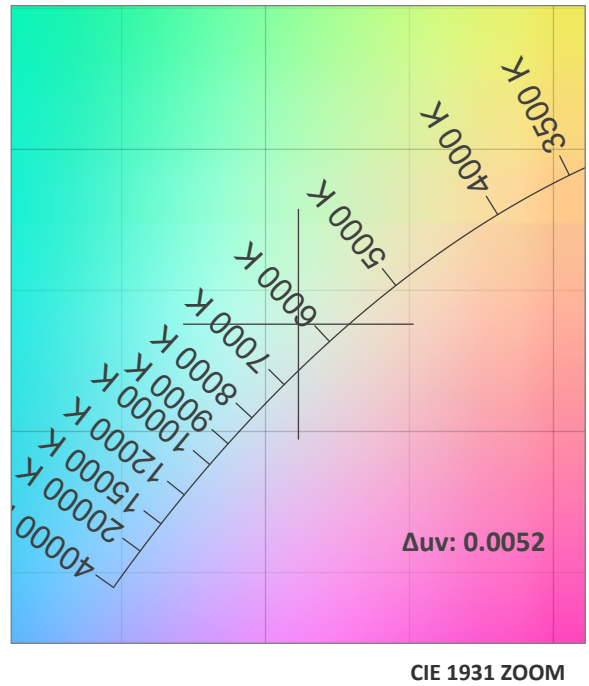
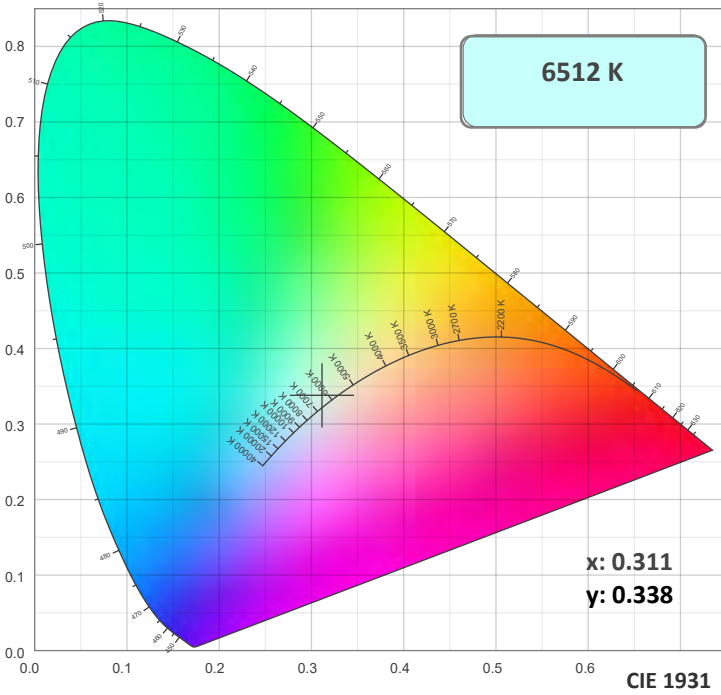
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
14112 cd	99.6%	98.6%

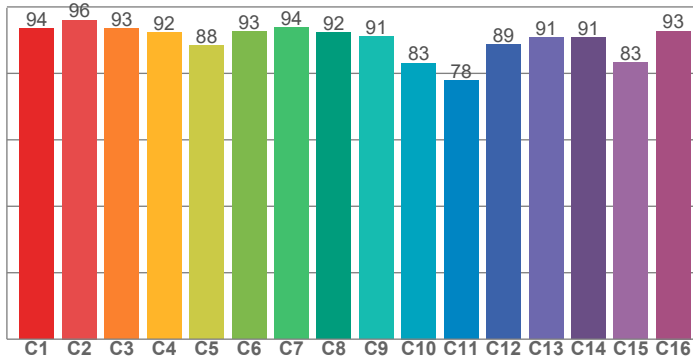
Beam Intensities from 1-20m

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	14096	3524	1566	881	564	392	288	220	174	141	116	98	83	72	63	55	49	44	39	35
FC	1309.6	327.4	145.5	81.8	52.4	36.4	26.7	20.5	16.2	13.1	10.8	9.1	7.7	6.7	5.8	5.1	4.5	4	3.6	3.3

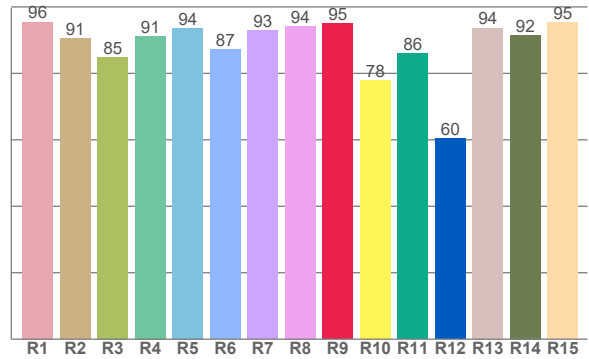
Color Details



TM30: 90.0



CRI: 91.3 (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
95.5	90.6	84.9	91.2	93.7	87.3	92.9	94.3	95.0	78.0	86.0	60.4	93.7	91.6	95.4

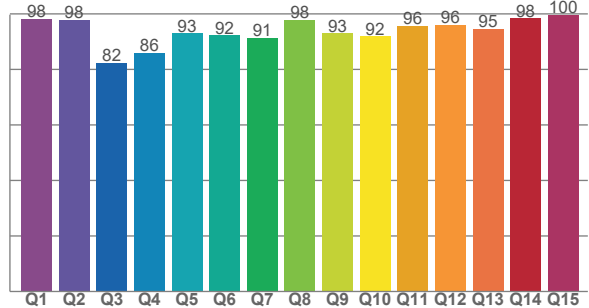
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93.5	96.1	93.4	92.3	88.5	92.6	93.9	92.2	91.0	83.1	77.9	88.6	90.9	90.7	83.4	92.7

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
98.1	97.7	82.5	85.8	92.9	92.2	91.5	97.9	93.0	91.9	95.7	95.9	94.7	98.4	99.6

CQS: 92.3



Color Parameters

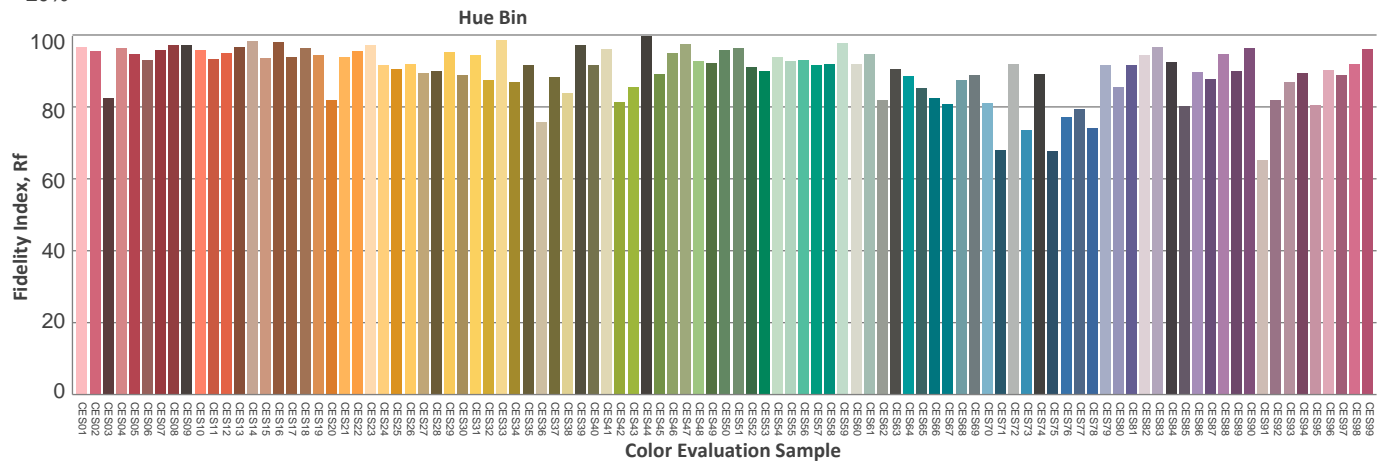
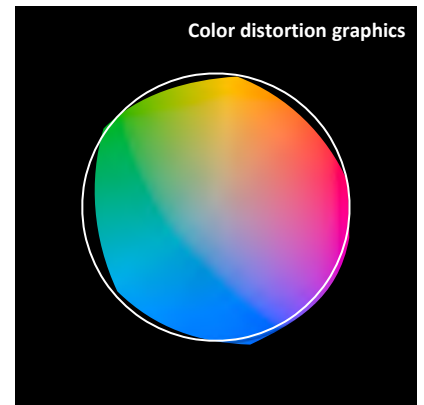
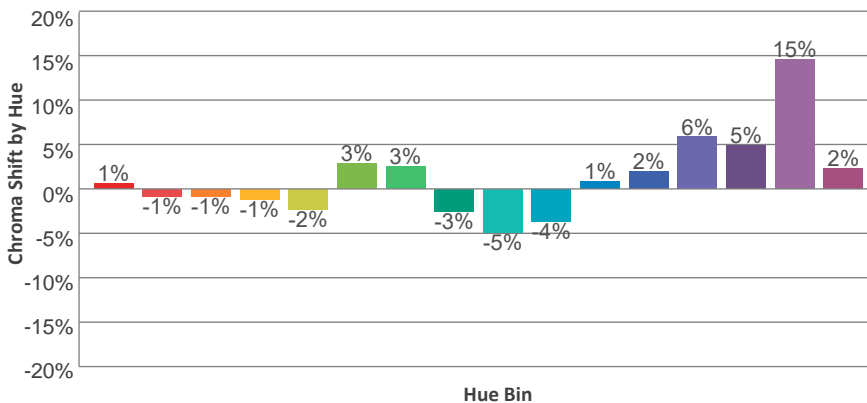
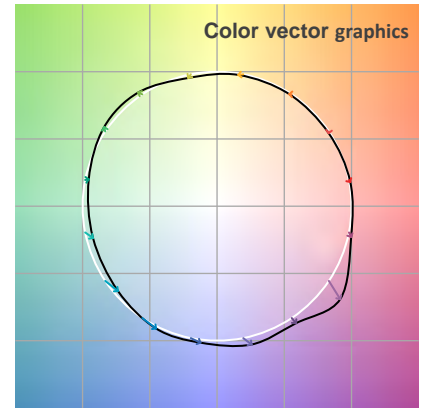
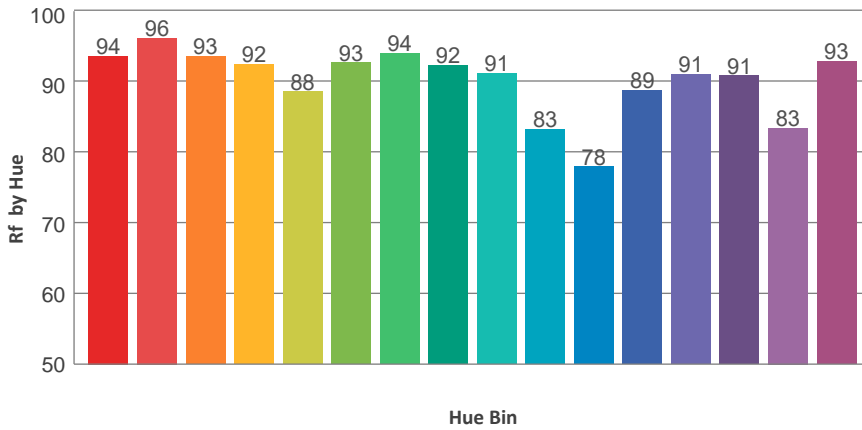
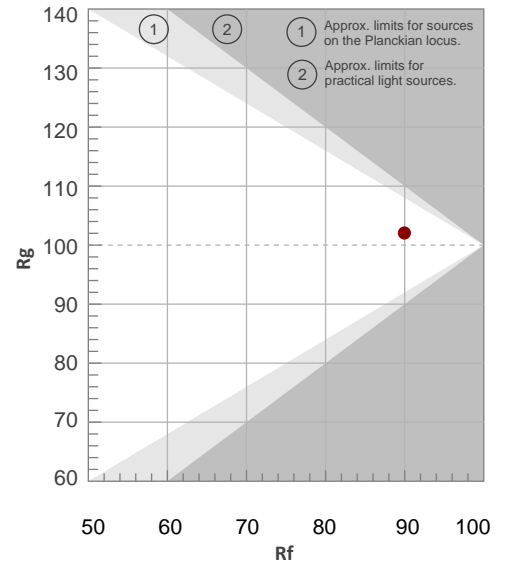
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
6512 K	91.3	95.0	90.0	102.1	92.3	0.311	0.338	0.194	0.315	0.0052

TM30 Details

Rf 90.0
Fidelity Index Rf

Rg 102.1
Gamut Index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	94	1%	-2%
2	96	-1%	-1%
3	93	-1%	2%
4	92	-1%	4%
5	88	-2%	2%
6	93	3%	2%
7	94	3%	-2%
8	92	-3%	-1%
9	91	-5%	5%
10	83	-4%	11%
11	78	1%	13%
12	89	2%	8%
13	91	6%	5%
14	91	5%	0%
15	83	15%	-7%
16	93	2%	-3%



Total Lumen Output: 9272 lm

Color Temperature: 6495 K

CRI: 91.7

TLCI: 93

TM30: 89.2

CQS: 91.2

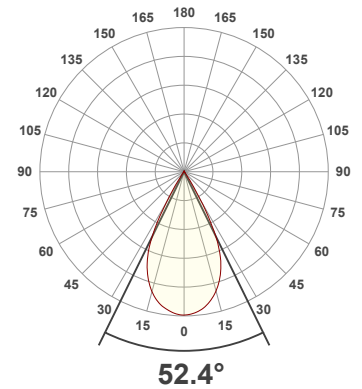
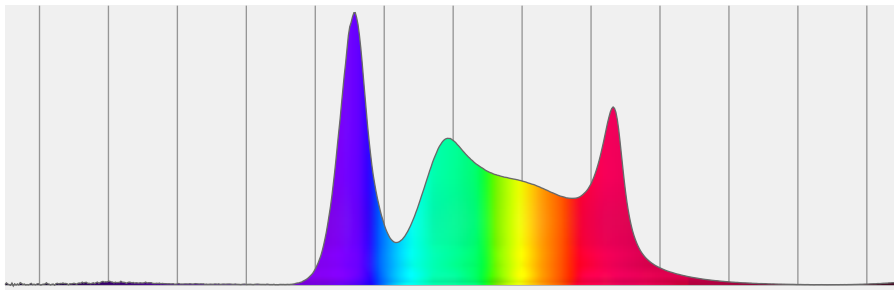
Measurement Date: 7/1/2021

Voltage: 111 V, Current: 2.58 A

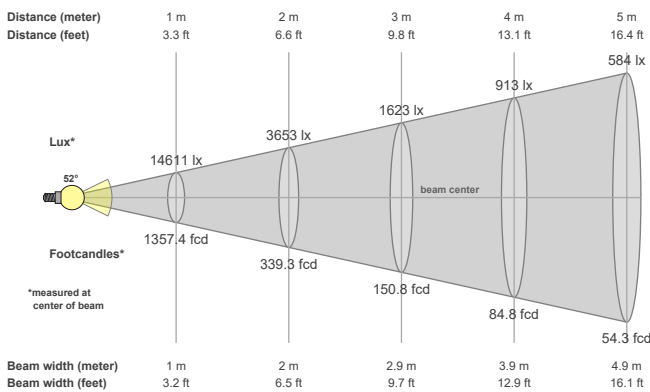
Power: 285 W

Efficacy: 33 Lumen/Watt

Spectral distribution
Dominant Wavelength 360



Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.4°	66°	74.2°

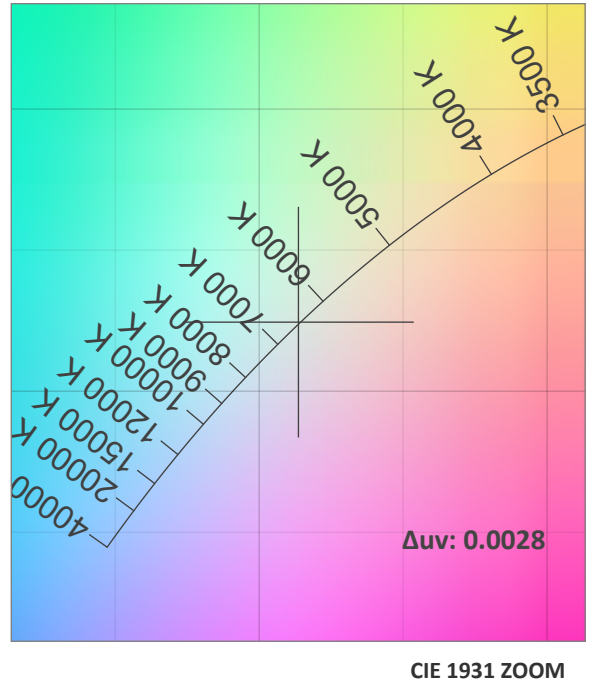
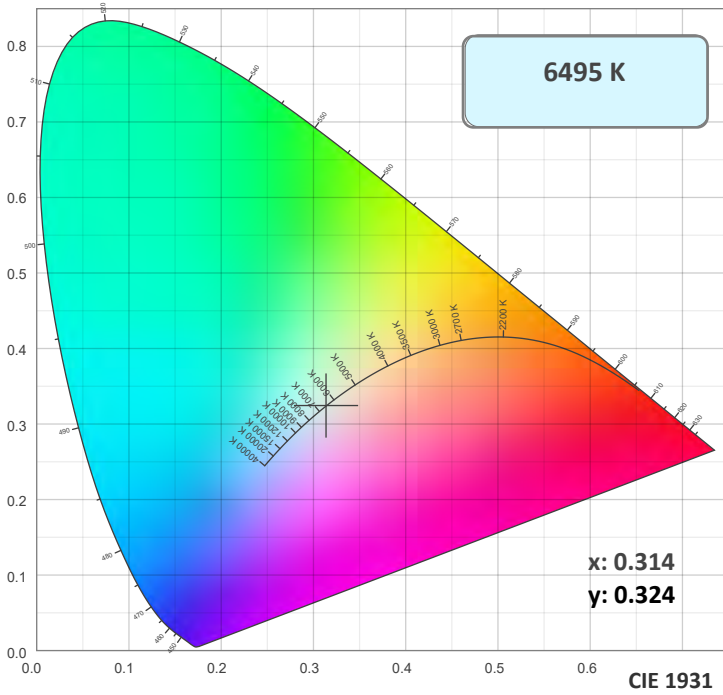
Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
14625 cd	99.4%	98.3%

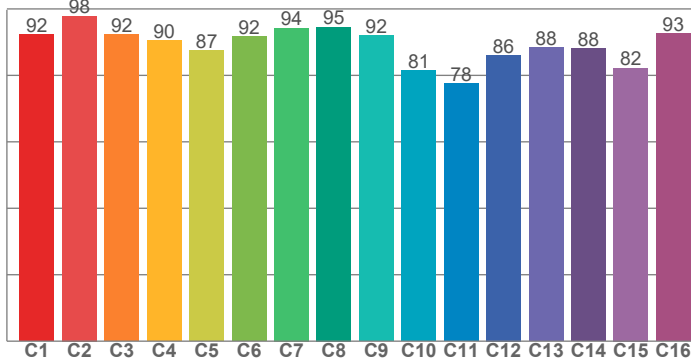
Beam Intensities from 1-20m

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	14611	3653	1623	913	584	406	298	228	180	146	121	101	86	75	65	57	51	45	40	37
FC	1357.4	339.3	150.8	84.8	54.3	37.7	27.7	21.2	16.8	13.6	11.2	9.4	8	6.9	6	5.3	4.7	4.2	3.8	3.4

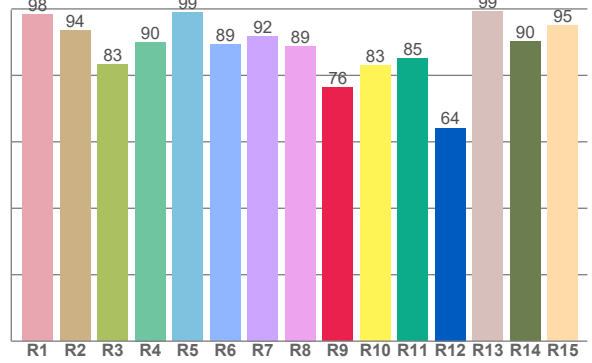
Color Details



TM30: 89.2



CRI: 91.7 (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
98.3	93.5	83.3	90.0	98.9	89.3	91.9	88.8	76.3	83.1	85.2	64.2	99.3	90.2	95.1

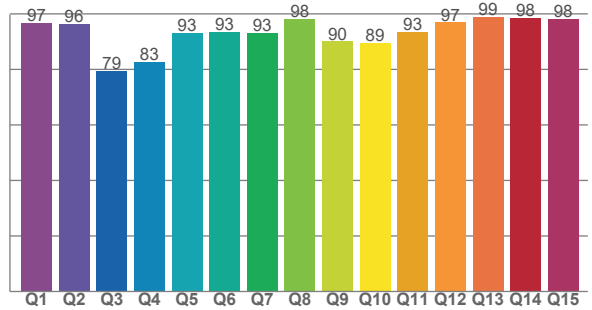
TM30 C Values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
92.3	97.9	92.4	90.5	87.5	91.7	94.3	94.6	91.9	81.4	77.6	86.1	88.4	88.1	82.2	92.6

CQS Q Values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
96.7	96.3	79.3	82.8	93.1	93.4	93.2	98.1	90.1	89.5	93.3	96.9	98.9	98.5	98.3

CQS: 91.2



Color Parameters

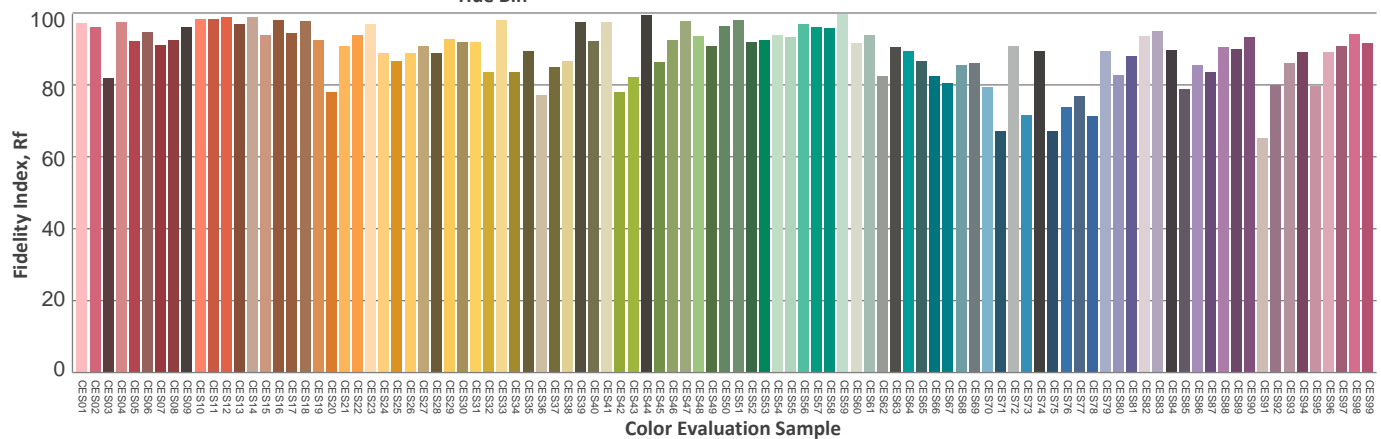
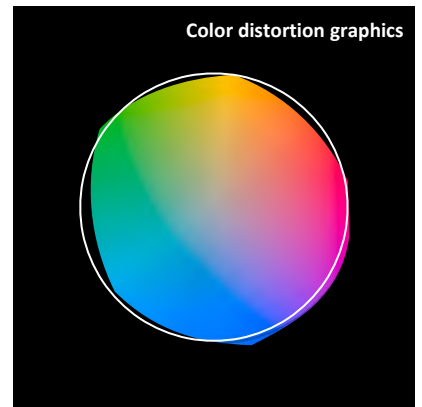
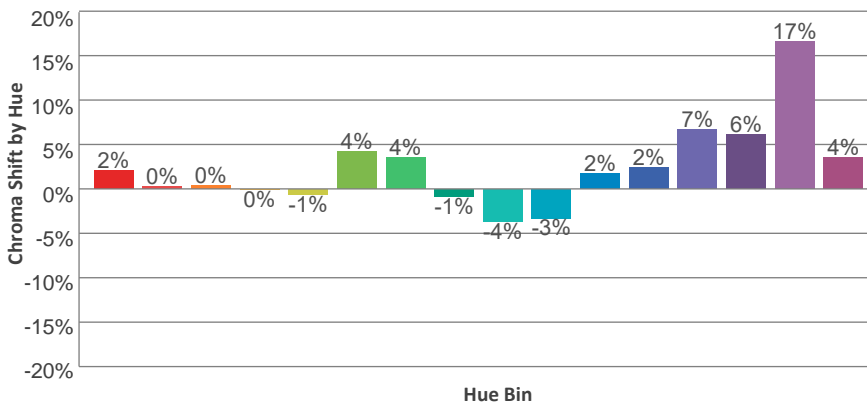
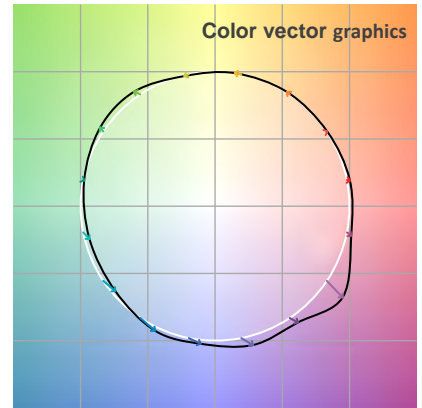
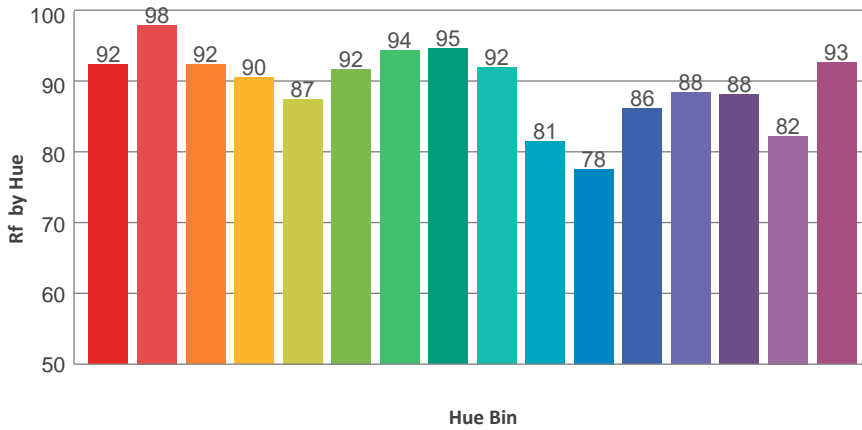
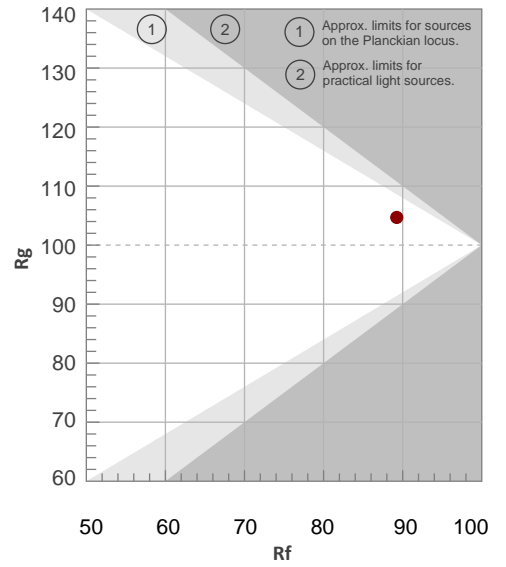
Color Temperature	Color Rendering Index	Red Component	Color Fidelity	Color Gamut	Color Quality Scale	Color Coordinate CIE 1931	Color Coordinate CIE 1931	Color Coordinate	Color Coordinate	Color Diviation from Black
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
6495 K	91.7	76.3	89.2	104.7	91.2	0.314	0.324	0.200	0.311	0.0028

TM30 Details

Rf 89.2
Fidelity Index Rf

Rg 104.7
Gamut Index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	92	2%	-1%
2	98	0%	0%
3	92	0%	3%
4	90	0%	5%
5	87	-1%	3%
6	92	4%	3%
7	94	4%	-1%
8	95	-1%	0%
9	92	-4%	6%
10	81	-3%	11%
11	78	2%	14%
12	86	2%	9%
13	88	7%	8%
14	88	6%	3%
15	82	17%	-4%
16	93	4%	-2%



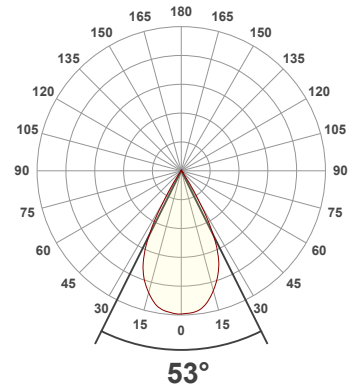
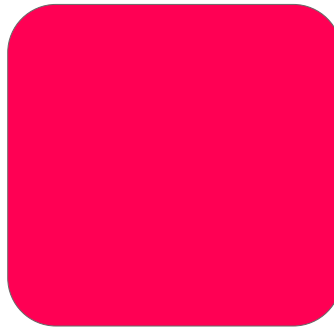
Total Lumen Output: 1406 lm

Voltage: 113 V, Current: 0.767 A

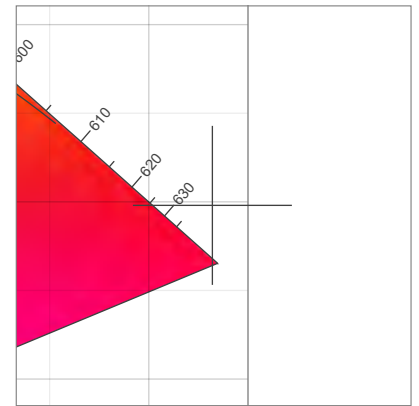
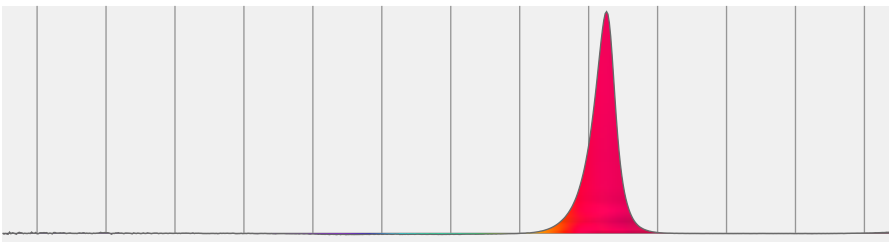
Power: 83.0 W

Efficacy: 17 Lumen/Watt

Measurement Date: 7/1/2021

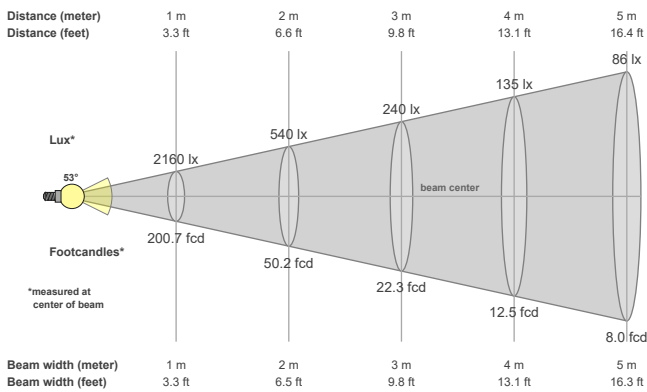


Spectral distribution



Dominant Wavelength	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate
nm	x	y	u	v
624	0.732	0.298	0.573	0.350

Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
53°	66.7°	74°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
2164 cd	99.4%	98.4%

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	2160	540	240	135	86	60	44	34	27	22	18	15	13	11	10	8	7	7	6	5
FC	200.7	50.2	22.3	12.5	8	5.6	4.1	3.1	2.5	2	1.7	1.4	1.2	1	0.9	0.8	0.7	0.6	0.6	0.5

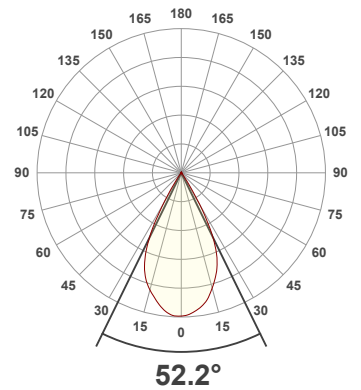
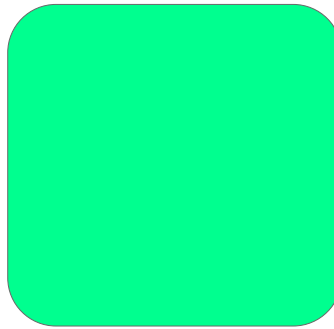
Total Lumen Output: 2233 lm

Voltage: 112 V, Current: 0.592 A

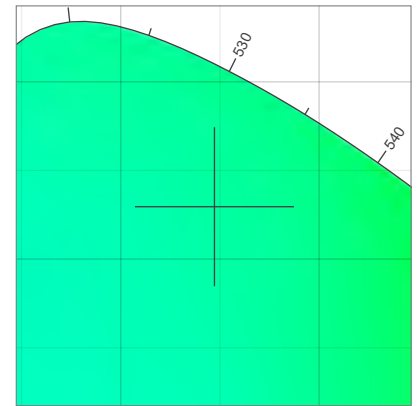
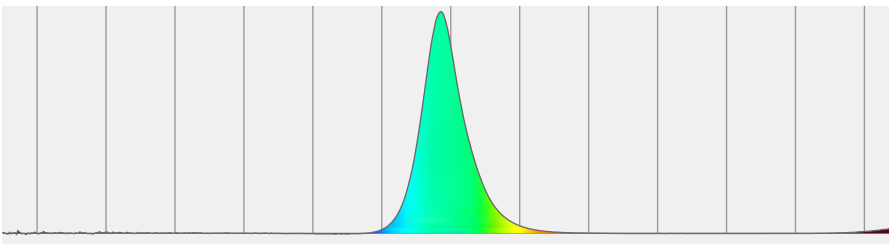
Power: 62.2 W

Efficacy: 36 Lumen/Watt

Measurement Date: 7/1/2021

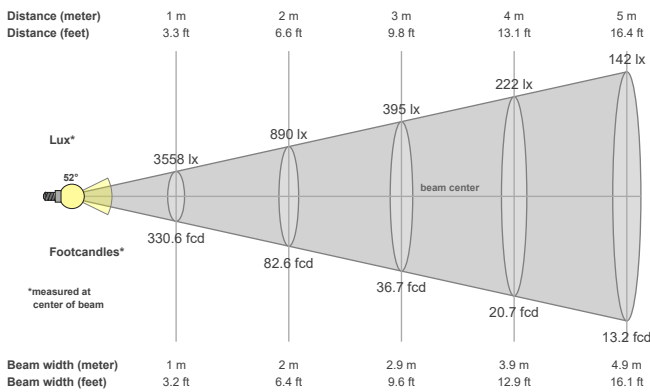


Spectral distribution



Dominant Wavelength	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate
nm	x	y	u	v
524	0.147	0.730	0.051	0.382

Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.2°	66.3°	73.8°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
3562 cd	99.5%	98.5%

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	3558	890	395	222	142	99	73	56	44	36	29	25	21	18	16	14	12	11	10	9
FC	330.6	82.6	36.7	20.7	13.2	9.2	6.7	5.2	4.1	3.3	2.7	2.3	2	1.7	1.5	1.3	1.1	1	0.9	0.8

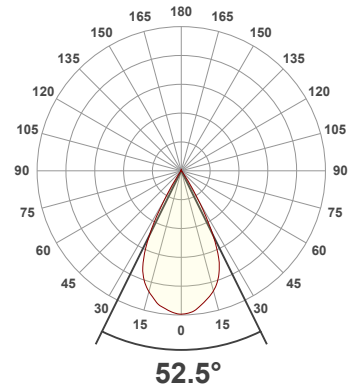
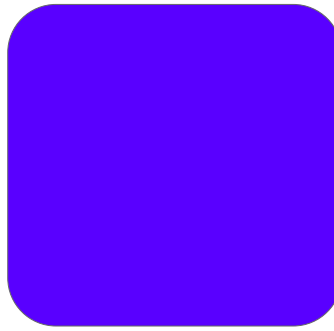
Total Lumen Output: 605 lm

Voltage: 112 V, Current: 0.827 A

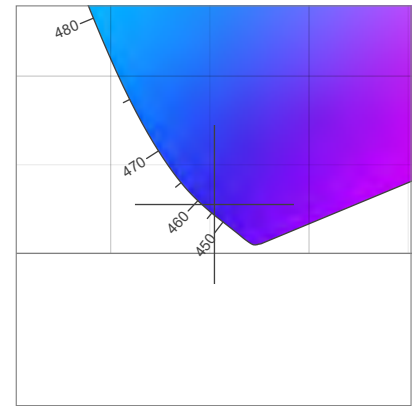
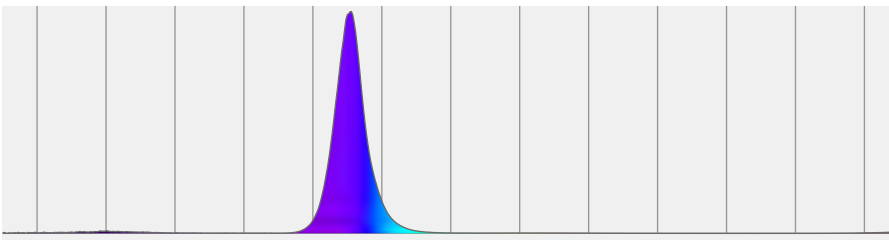
Power: 89.8 W

Efficacy: 7 Lumen/Watt

Measurement Date: 7/1/2021

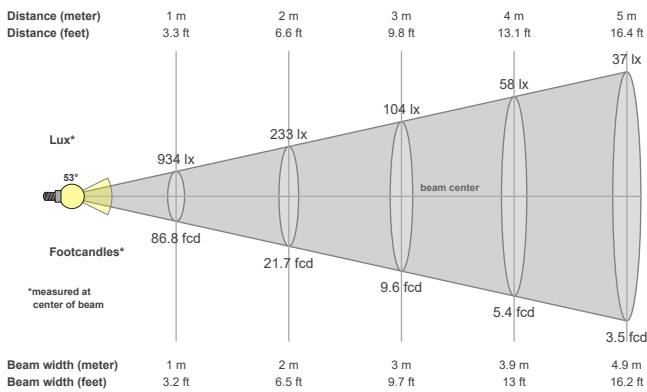


Spectral distribution



Dominant Wavelength	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate
nm	x	y	u	v
456	0.152	0.028	0.201	0.055

Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.5°	66.5°	74.3°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
935 cd	99.1%	97.9%

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	934	233	104	58	37	26	19	15	12	9	8	6	6	5	4	4	3	3	3	2
FC	86.8	21.7	9.6	5.4	3.5	2.4	1.8	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2

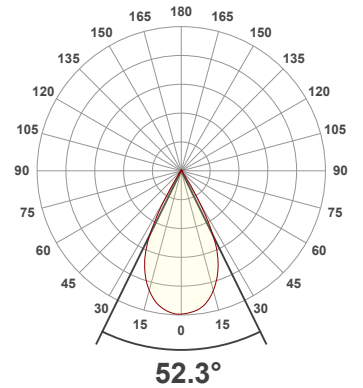
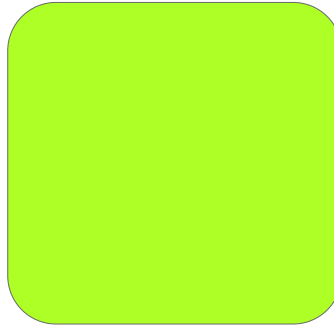
Total Lumen Output: 10969 lm

Voltage: 111 V, Current: 1.79 A

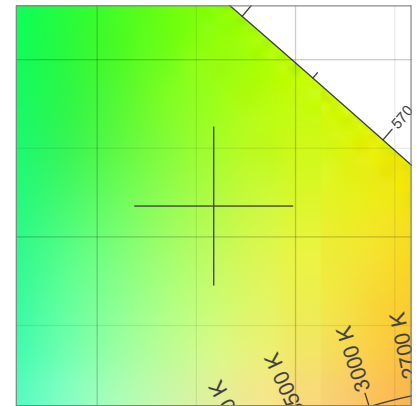
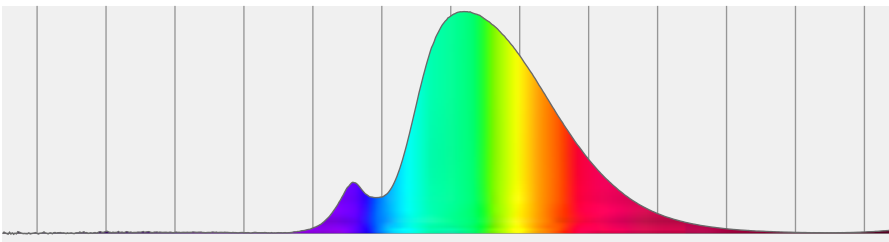
Power: 195.7 W

Efficacy: 56 Lumen/Watt

Measurement Date: 7/1/2021

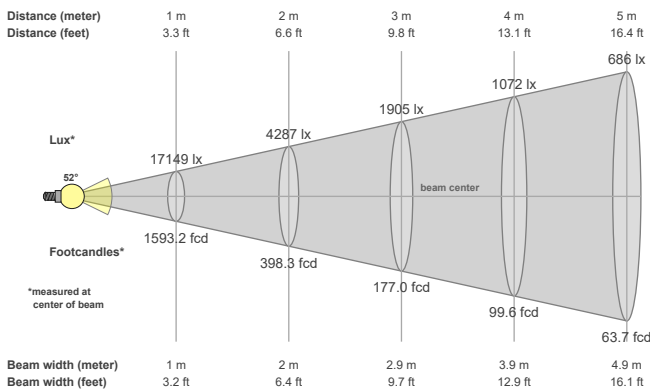


Spectral distribution



Dominant Wavelength	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate
nm	x	y	u	v
561	0.359	0.517	0.169	0.366

Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.3°	66°	74.7°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
17170 cd	99.0%	97.7%

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	17149	4287	1905	1072	686	476	350	268	212	171	142	119	101	87	76	67	59	53	48	43
FC	1593.2	398.3	177	99.6	63.7	44.3	32.5	24.9	19.7	15.9	13.2	11.1	9.4	8.1	7.1	6.2	5.5	4.9	4.4	4

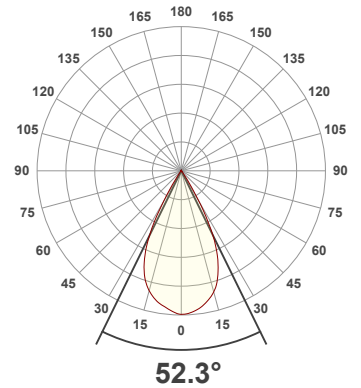
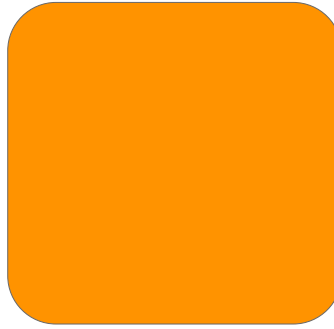
Total Lumen Output: 2345 lm

Voltage: 112 V, Current: 0.872 A

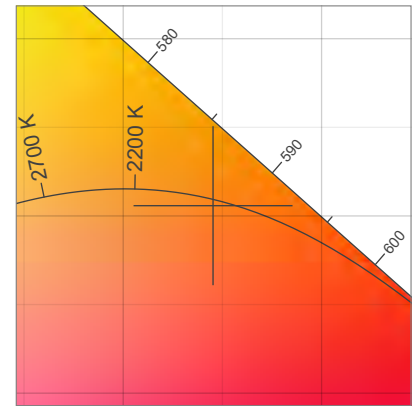
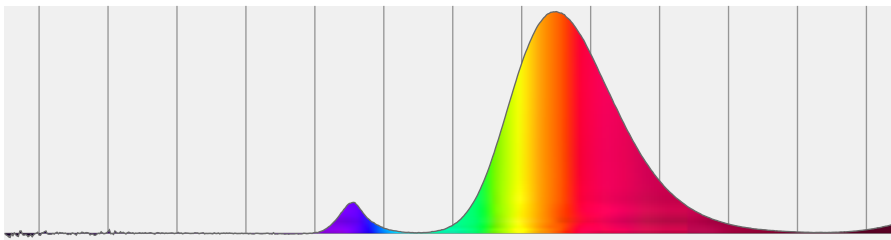
Power: 95.0 W

Efficacy: 25 Lumen/Watt

Measurement Date: 7/1/2021

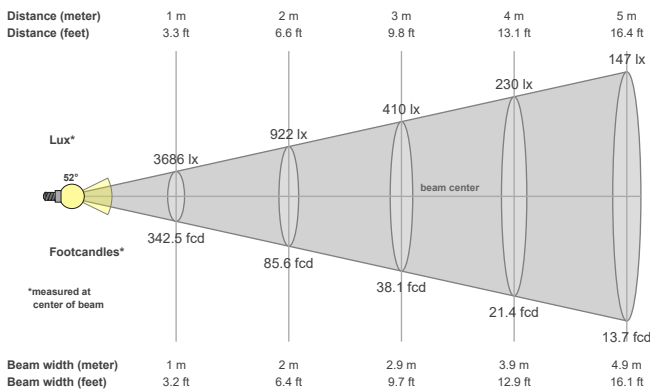


Spectral distribution



Dominant Wavelength	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate
nm	x	y	u	v
591	0.545	0.406	0.322	0.359

Beam details



Beam angles

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%
52.3°	66.2°	73.8°

Beam intensities

Peak intensity	Int. ratio in 120° cone	Int. ratio in 90° cone
3688 cd	99.3%	98.3%

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	3686	922	410	230	147	102	75	58	46	37	30	26	22	19	16	14	13	11	10	9
FC	342.5	85.6	38.1	21.4	13.7	9.5	7	5.4	4.2	3.4	2.8	2.4	2	1.7	1.5	1.3	1.2	1.1	0.9	0.9