

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P1356804

Luminaire Tested: 2ASL4-10-1-R63-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1356804
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2511-597-6)
Test Lab: INNOVATION CENTER
Issue Date: 2/17/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: 2ASL4-10-1-R63-UNV
Description: 2FT 1000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND R63 LEDS 1 ROW
Light Source: -
Ballast/Driver: -

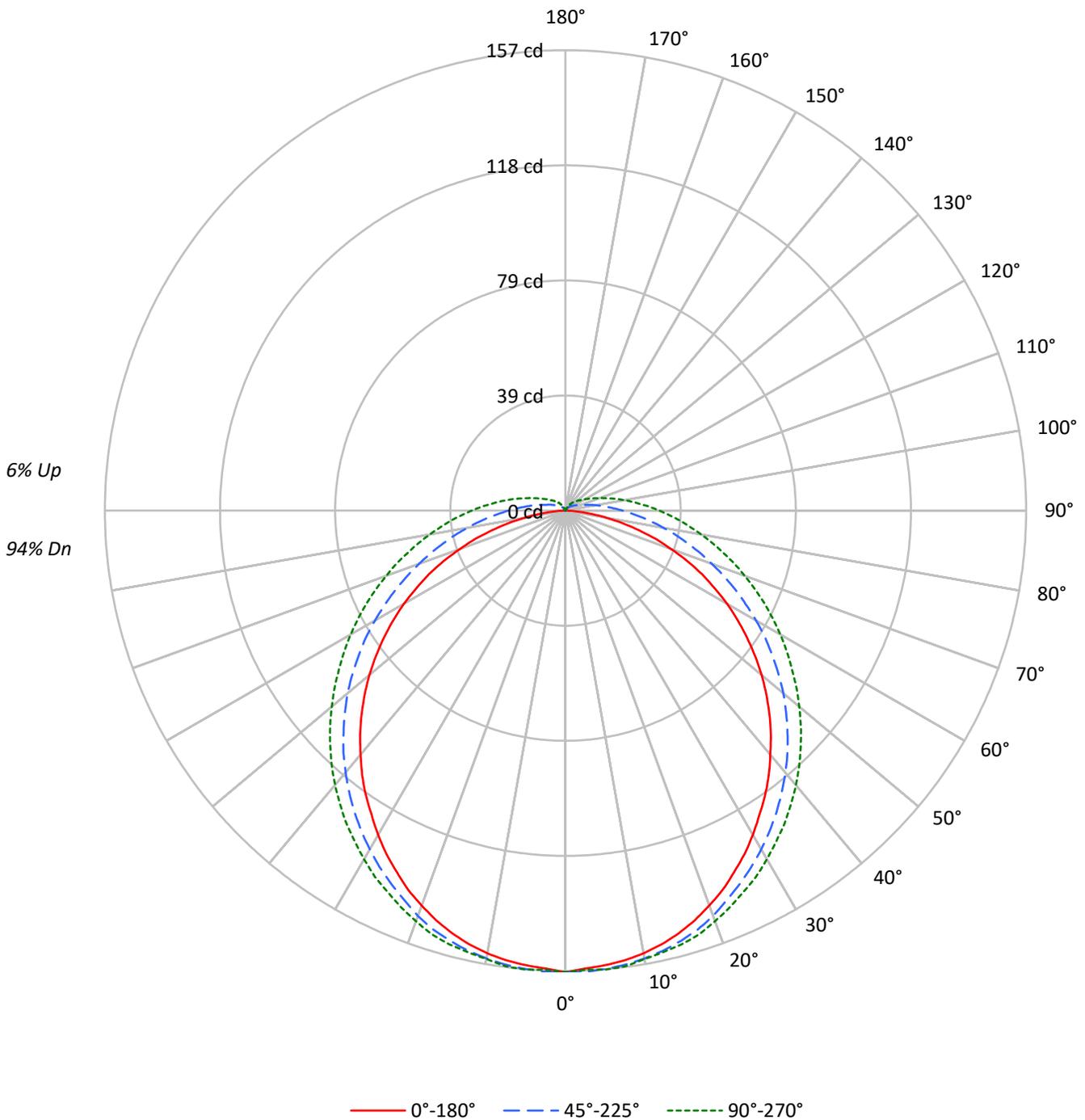
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 527.0 lumens
Efficiency: N/A
Efficacy: 40.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 1.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 13
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P1356804
CATALOG NUMBER: 2ASL4-10-1-R63-UNV

Luminous Intensity Polar Plot





TEST NUMBER: P1356804
 CATALOG NUMBER: 2ASL4-10-1-R63-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.9	2.8
10°-20°	42.8	8.1
20°-30°	64.7	12.3
30°-40°	78.2	14.8
40°-50°	82.2	15.6
50°-60°	76.6	14.5
60°-70°	62.9	11.9
70°-80°	44.7	8.5
80°-90°	26.9	5.1
90°-100°	15.1	2.9
100°-110°	8.4	1.6
110°-120°	4.7	0.9
120°-130°	2.7	0.5
130°-140°	1.5	0.3
140°-150°	0.7	0.1
150°-160°	0.2	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	122.4	23.2
0°-40°	200.6	38.1
0°-60°	359.4	68.2
0°-90°	494.0	93.7
90°-120°	28.1	5.3
90°-150°	32.9	6.2
90°-180°	33.0	6.3
0°-180°	527.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	157	157	157	157	157	
5°	156	157	157	157	157	15
15°	149	151	152	153	153	42
25°	136	138	140	142	144	63
35°	119	122	125	129	130	74
45°	98	102	107	112	113	76
55°	76	80	86	92	94	68
65°	51	56	64	71	75	51
75°	26	32	43	52	56	28
85°	5	14	26	36	39	6
90°	0	8	19	28	32	0
95°	0	5	14	22	26	0
105°	0	2	8	14	16	0
115°	0	1	5	8	10	0
125°	0	0	3	5	6	0
135°	0	0	2	3	4	0
145°	0	0	1	2	2	0
155°	0	0	0	0	1	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P1356804

CATALOG NUMBER: 2ASL4-10-1-R63-UNV

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	157.4	157.4	157.4	157.4	157.4
2.5°	156.3	157.8	157.4	156.7	156.7
5°	155.6	157.1	156.9	156.7	157.1
7.5°	154.7	156.2	156.2	156.3	156.7
10°	153.3	155.1	155.1	155.1	155.3
12.5°	151.5	153.3	153.7	153.8	154.2
15°	149.2	151.2	151.9	152.6	153.1
17.5°	146.5	148.5	149.8	150.6	151.5
20°	143.3	145.5	147.1	148.2	149.0
22.5°	140.0	142.1	143.7	145.3	146.4
25°	136.0	138.5	140.5	142.5	143.5
27.5°	132.1	134.6	137.1	139.4	140.7
30°	127.7	130.5	133.4	136.0	137.3
32.5°	123.0	126.1	129.5	132.3	133.7
35°	118.6	121.6	125.4	128.6	130.2
37.5°	113.8	116.8	121.1	124.6	126.2
40°	108.6	112.0	116.6	120.4	122.2
42.5°	103.6	107.0	112.0	116.1	117.9
45°	98.3	101.9	107.0	111.5	113.4
47.5°	92.8	96.5	102.0	106.7	108.8
50°	87.3	91.2	96.9	101.9	104.0
52.5°	81.4	85.5	91.5	96.9	99.2
55°	75.5	79.8	86.0	91.7	94.2
57.5°	69.6	73.9	80.7	86.7	89.4
60°	63.6	68.0	75.0	81.6	84.6
62.5°	57.3	62.0	69.3	76.4	79.6
65°	51.3	55.9	63.9	71.4	74.8
67.5°	44.9	49.9	58.4	66.2	69.8
70°	38.3	44.0	53.1	61.4	65.0
72.5°	32.4	38.3	48.1	56.6	60.4
75°	25.8	32.4	43.1	52.0	55.7
77.5°	20.1	27.2	38.5	47.5	51.3
80°	14.4	22.3	34.0	43.3	47.0
82.5°	9.3	17.8	29.9	39.4	42.9
85°	4.8	13.9	26.0	35.6	39.2
87.5°	1.4	10.7	22.4	31.9	35.4
90°	0.0	8.2	19.4	28.5	31.9
92.5°	0.0	6.2	16.7	25.5	28.8
95°	0.0	4.8	14.2	22.4	25.6
97.5°	0.0	3.7	12.3	19.8	23.0
100°	0.0	3.0	10.5	17.5	20.5
102.5°	0.0	2.5	9.1	15.5	18.2
105°	0.0	1.8	7.5	13.5	16.0
107.5°	0.0	1.2	6.6	11.9	14.1
110°	0.0	1.1	5.9	10.3	12.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	0.9	5.2	9.3	11.0
115°	0.0	0.9	4.6	8.2	9.8
117.5°	0.0	0.7	3.9	7.3	8.7
120°	0.0	0.7	3.6	6.6	7.8
122.5°	0.0	0.5	3.2	5.9	7.1
125°	0.0	0.5	2.8	5.3	6.2
127.5°	0.0	0.4	2.5	4.8	5.7
130°	0.0	0.4	2.3	4.3	5.2
132.5°	0.0	0.2	2.1	3.9	4.6
135°	0.0	0.2	1.8	3.4	4.3
137.5°	0.0	0.0	1.6	3.0	3.7
140°	0.0	0.0	1.2	2.7	3.4
142.5°	0.2	0.0	1.1	2.3	2.8
145°	0.2	0.0	0.7	2.0	2.5
147.5°	0.2	0.2	0.5	1.6	2.0
150°	0.2	0.2	0.4	1.1	1.6
152.5°	0.2	0.2	0.2	0.7	1.1
155°	0.2	0.2	0.0	0.5	0.7
157.5°	0.2	0.2	0.0	0.2	0.4
160°	0.2	0.2	0.0	0.0	0.2
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0



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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	12.65	14.20	13.11	14.65	15.11	14.55	16.10	15.01	16.54	17.01
	3H	14.15	15.56	14.62	16.01	16.52	16.92	18.34	17.39	18.79	19.30
	4H	14.62	15.96	15.11	16.43	16.96	18.06	19.40	18.55	19.87	20.39
	6H	14.90	16.15	15.41	16.63	17.17	19.22	20.47	19.73	20.95	21.49
	8H	14.95	16.15	15.47	16.66	17.20	19.80	21.00	20.32	21.51	22.05
	12H	14.97	16.11	15.49	16.61	17.19	20.43	21.58	20.95	22.08	22.65
4H	2H	13.50	14.84	13.99	15.31	15.83	14.99	16.33	15.48	16.80	17.32
	3H	15.23	16.37	15.74	16.89	17.43	17.59	18.73	18.09	19.24	19.79
	4H	15.83	16.87	16.36	17.40	17.98	18.89	19.93	19.42	20.46	21.04
	6H	16.23	17.15	16.77	17.70	18.29	20.24	21.16	20.79	21.71	22.31
	8H	16.32	17.19	16.87	17.74	18.34	20.93	21.80	21.48	22.35	22.95
	12H	16.36	17.15	16.94	17.73	18.34	21.68	22.46	22.25	23.04	23.65
8H	4H	16.46	17.33	17.01	17.88	18.49	19.11	19.97	19.66	20.53	21.13
	6H	17.03	17.76	17.61	18.36	18.97	20.62	21.36	21.21	21.95	22.56
	8H	17.21	17.87	17.80	18.47	19.10	21.45	22.11	22.05	22.72	23.34
	12H	17.32	17.91	17.91	18.50	19.19	22.38	22.97	22.98	23.57	24.26
12H	4H	16.63	17.42	17.21	18.00	18.61	19.12	19.90	19.69	20.48	21.09
	6H	17.29	17.96	17.89	18.56	19.18	20.66	21.32	21.26	21.93	22.55
	8H	17.56	18.15	18.16	18.75	19.44	21.56	22.15	22.15	22.74	23.43

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Fail-Safe

Report Number: SP1-2511-597-7

Test Date: 01/21/2026

Luminaire Tested: 4ASL-2-R630-UNV-OPL-1_600mA

Data in this report applies to families of products including 4ASL

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2511-597-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 01/29/2026
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Fail-Safe
 Catalog Number: **4ASL-2-R630-UNV-OPL-1_600mA**
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND RED 630NM LEDS with 1 rows at 600mA

Spectral Parameters

CCT (K): 0
 CIE u': 0.5395
 CIE v': 0.5190
 Duv: 0.0000
 CIE x: 0.7004
 CIE y: 0.2995
 CIE z: 0.0001
 Peak Wavelength (nm): 638
 Dominant Wavelength (nm): 624
 Purity: 99.9862
 Rf: NR
 Rg: NR

CRI (Ra): 0.0
 R1: 0.0
 R2: 0.0
 R3: 0.0
 R4: 0.0
 R5: 0.0
 R6: 0.0
 R7: 0.0
 R8: 0.0
 R9: 0.0
 R10: 0.0
 R11: 0.0
 R12: 0.0
 R13: 0.0
 R14: 0.0
 R15: 0.0



Test Conditions

Stabilization Time: 69M
 Operation Time: 2H 9M
 Sphere Temperature (°C): 25.1

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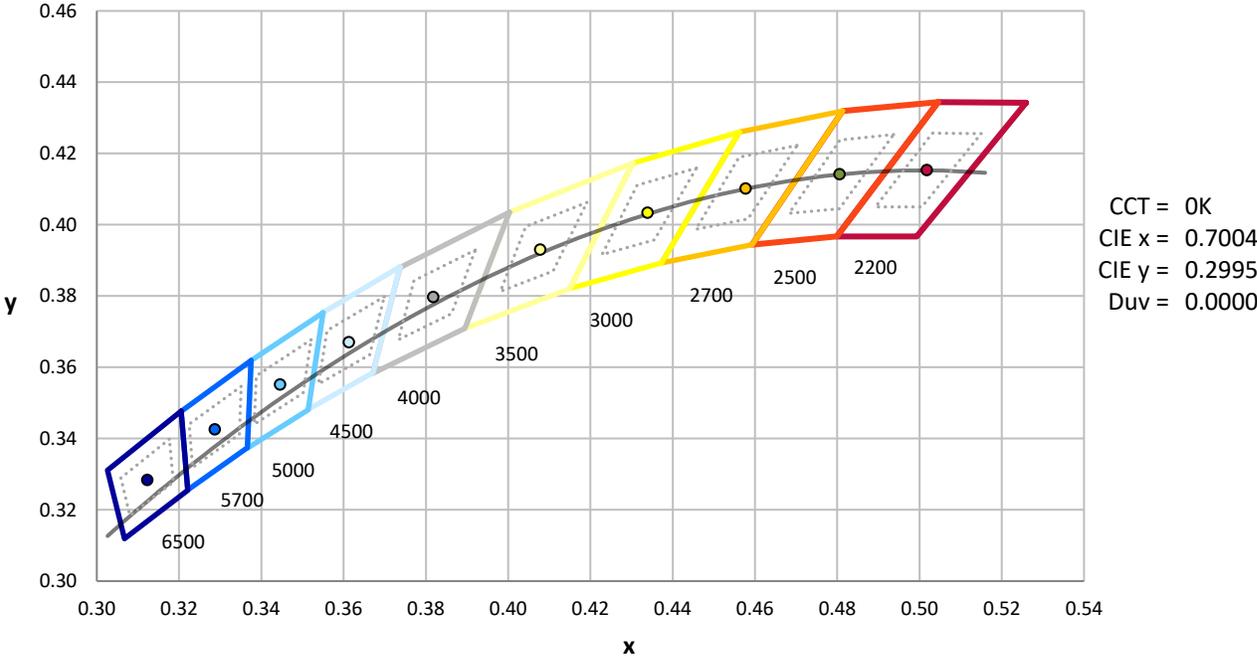
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	12/16/2025	6/16/2026
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208	10/21/2025	10/21/2026
Sphere Thermometer	ONSET IN0085	10/21/2025	10/21/2026
Room Thermometer	ONSET IN0046	10/21/2025	10/21/2026

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles

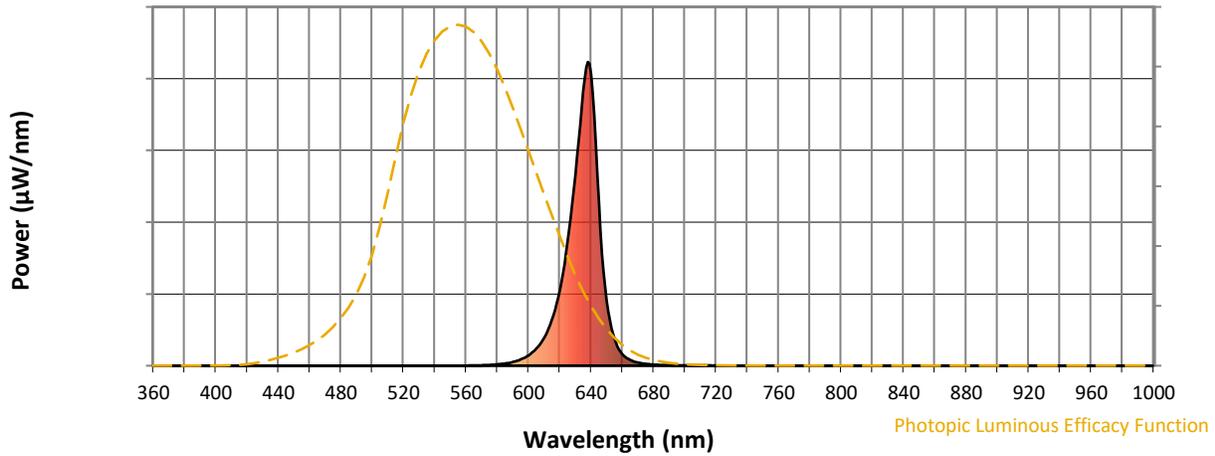


CCT = 0K
 CIE x = 0.7004
 CIE y = 0.2995
 Duv = 0.0000

Point lies outside the range

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Photopic Flux vs. Wavelength

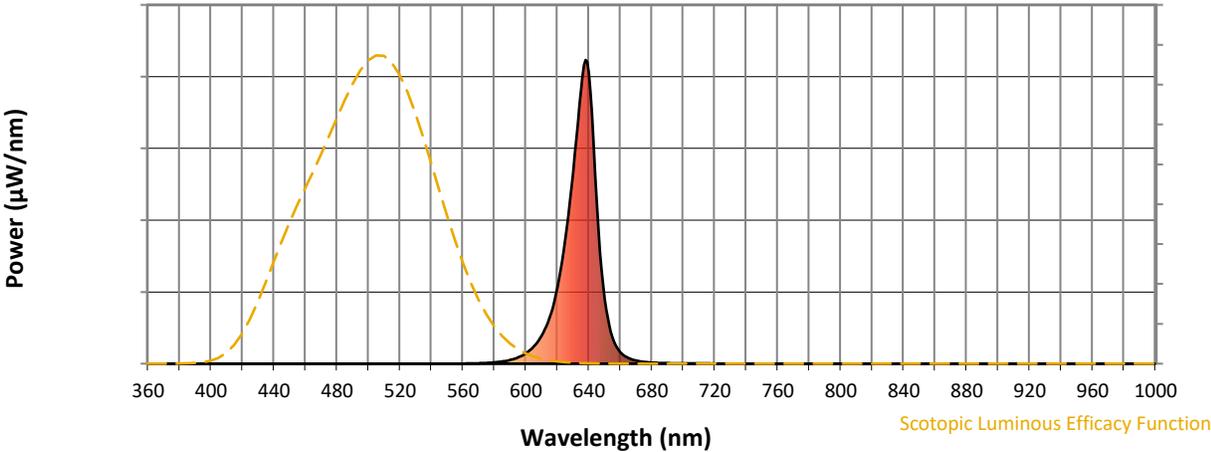


Photopic Lumens: NR

λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	0	NR	620	248	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	409	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	630	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	903	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	960	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	535	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	212	NR	780	0	NR	910	0	NR
395	0	NR	525	0	NR	655	88	NR	785	0	NR	915	0	NR
400	0	NR	530	0	NR	660	38	NR	790	0	NR	920	0	NR
405	0	NR	535	0	NR	665	19	NR	795	0	NR	925	0	NR
410	0	NR	540	0	NR	670	10	NR	800	0	NR	930	0	NR
415	0	NR	545	0	NR	675	6	NR	805	0	NR	935	0	NR
420	0	NR	550	0	NR	680	4	NR	810	0	NR	940	0	NR
425	0	NR	555	0	NR	685	2	NR	815	0	NR	945	0	NR
430	0	NR	560	0	NR	690	2	NR	820	0	NR	950	0	NR
435	0	NR	565	1	NR	695	1	NR	825	0	NR	955	0	NR
440	0	NR	570	2	NR	700	1	NR	830	0	NR	960	0	NR
445	0	NR	575	3	NR	705	1	NR	835	0	NR	965	0	NR
450	0	NR	580	4	NR	710	1	NR	840	0	NR	970	0	NR
455	0	NR	585	7	NR	715	1	NR	845	0	NR	975	0	NR
460	0	NR	590	12	NR	720	1	NR	850	0	NR	980	0	NR
465	0	NR	595	20	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	34	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	56	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	92	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	152	NR	745	0	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



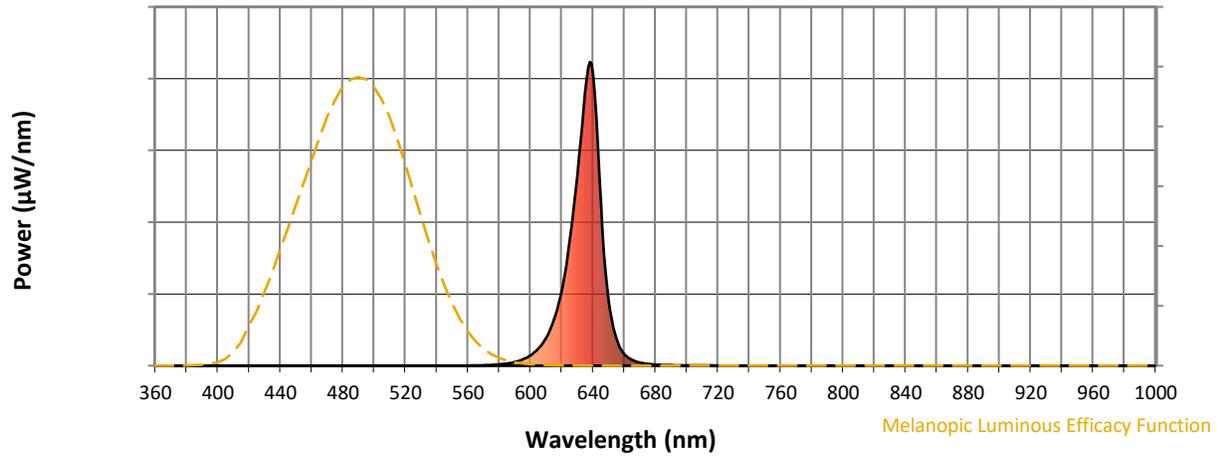
Scotopic Lumens: NR

S/P: 0.05

λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)												
360	0	NR	490	0	NR	620	248	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	409	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	630	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	903	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	960	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	535	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	212	NR	780	0	NR	910	0	NR
395	0	NR	525	0	NR	655	88	NR	785	0	NR	915	0	NR
400	0	NR	530	0	NR	660	38	NR	790	0	NR	920	0	NR
405	0	NR	535	0	NR	665	19	NR	795	0	NR	925	0	NR
410	0	NR	540	0	NR	670	10	NR	800	0	NR	930	0	NR
415	0	NR	545	0	NR	675	6	NR	805	0	NR	935	0	NR
420	0	NR	550	0	NR	680	4	NR	810	0	NR	940	0	NR
425	0	NR	555	0	NR	685	2	NR	815	0	NR	945	0	NR
430	0	NR	560	0	NR	690	2	NR	820	0	NR	950	0	NR
435	0	NR	565	1	NR	695	1	NR	825	0	NR	955	0	NR
440	0	NR	570	2	NR	700	1	NR	830	0	NR	960	0	NR
445	0	NR	575	3	NR	705	1	NR	835	0	NR	965	0	NR
450	0	NR	580	4	NR	710	1	NR	840	0	NR	970	0	NR
455	0	NR	585	7	NR	715	1	NR	845	0	NR	975	0	NR
460	0	NR	590	12	NR	720	1	NR	850	0	NR	980	0	NR
465	0	NR	595	20	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	34	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	56	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	92	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	152	NR	745	0	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 0.02

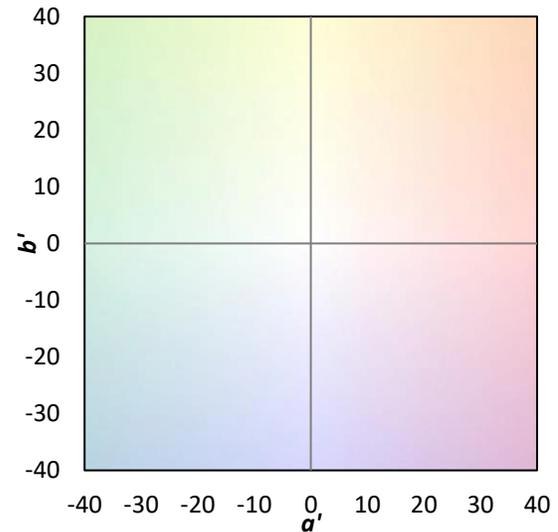
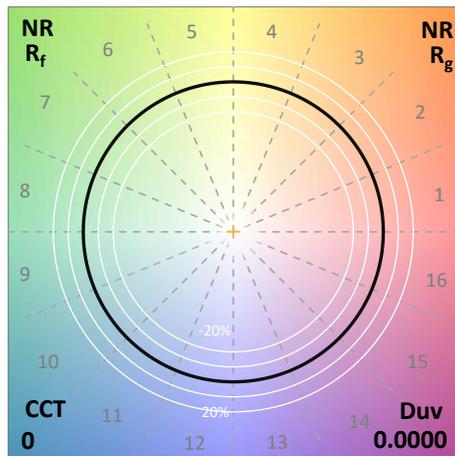
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	0	NR	620	248	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	409	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	630	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	903	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	960	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	535	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	212	NR	780	0	NR	910	0	NR
395	0	NR	525	0	NR	655	88	NR	785	0	NR	915	0	NR
400	0	NR	530	0	NR	660	38	NR	790	0	NR	920	0	NR
405	0	NR	535	0	NR	665	19	NR	795	0	NR	925	0	NR
410	0	NR	540	0	NR	670	10	NR	800	0	NR	930	0	NR
415	0	NR	545	0	NR	675	6	NR	805	0	NR	935	0	NR
420	0	NR	550	0	NR	680	4	NR	810	0	NR	940	0	NR
425	0	NR	555	0	NR	685	2	NR	815	0	NR	945	0	NR
430	0	NR	560	0	NR	690	2	NR	820	0	NR	950	0	NR
435	0	NR	565	1	NR	695	1	NR	825	0	NR	955	0	NR
440	0	NR	570	2	NR	700	1	NR	830	0	NR	960	0	NR
445	0	NR	575	3	NR	705	1	NR	835	0	NR	965	0	NR
450	0	NR	580	4	NR	710	1	NR	840	0	NR	970	0	NR
455	0	NR	585	7	NR	715	1	NR	845	0	NR	975	0	NR
460	0	NR	590	12	NR	720	1	NR	850	0	NR	980	0	NR
465	0	NR	595	20	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	34	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	56	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	92	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	152	NR	745	0	NR	875	0	NR			

Summary

$R_f = 0$
 $R_g = 0$
 CIE $R_a = 0.0$
 $R_9 = 0.0$



Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

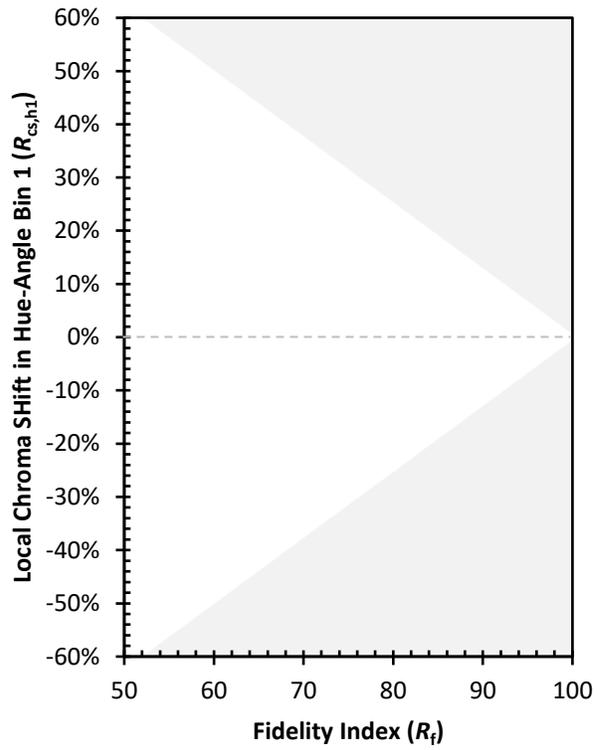
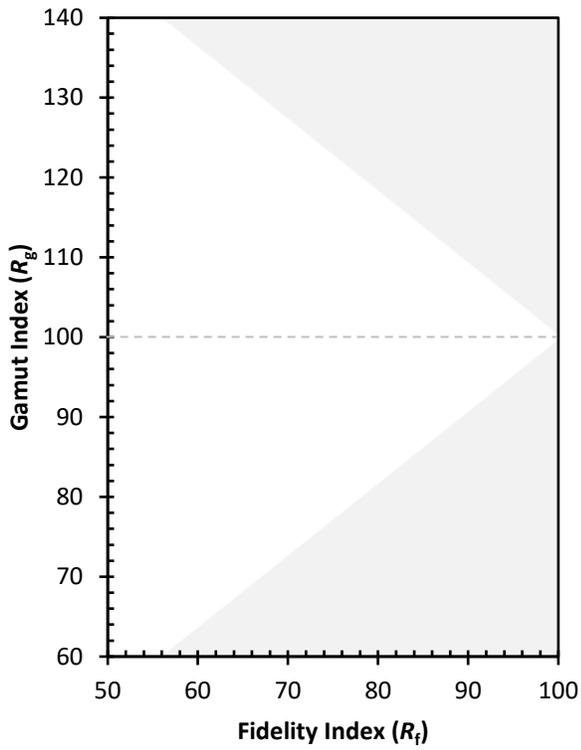
CES01 = 0	CES26 = 0	CES51 = 0	CES76 = 0
CES02 = 0	CES27 = 0	CES52 = 0	CES77 = 0
CES03 = 0	CES28 = 0	CES53 = 0	CES78 = 0
CES04 = 0	CES29 = 0	CES54 = 0	CES79 = 0
CES05 = 0	CES30 = 0	CES55 = 0	CES80 = 0
CES06 = 0	CES31 = 0	CES56 = 0	CES81 = 0
CES07 = 0	CES32 = 0	CES57 = 0	CES82 = 0
CES08 = 0	CES33 = 0	CES58 = 0	CES83 = 0
CES09 = 0	CES34 = 0	CES59 = 0	CES84 = 0
CES10 = 0	CES35 = 0	CES60 = 0	CES85 = 0
CES11 = 0	CES36 = 0	CES61 = 0	CES86 = 0
CES12 = 0	CES37 = 0	CES62 = 0	CES87 = 0
CES13 = 0	CES38 = 0	CES63 = 0	CES88 = 0
CES14 = 0	CES39 = 0	CES64 = 0	CES89 = 0
CES15 = 0	CES40 = 0	CES65 = 0	CES90 = 0
CES16 = 0	CES41 = 0	CES66 = 0	CES91 = 0
CES17 = 0	CES42 = 0	CES67 = 0	CES92 = 0
CES18 = 0	CES43 = 0	CES68 = 0	CES93 = 0
CES19 = 0	CES44 = 0	CES69 = 0	CES94 = 0
CES20 = 0	CES45 = 0	CES70 = 0	CES95 = 0
CES21 = 0	CES46 = 0	CES71 = 0	CES96 = 0
CES22 = 0	CES47 = 0	CES72 = 0	CES97 = 0
CES23 = 0	CES48 = 0	CES73 = 0	CES98 = 0
CES24 = 0	CES49 = 0	CES74 = 0	CES99 = 0
CES25 = 0	CES50 = 0	CES75 = 0	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)