

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: P1356681

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

Issue Date: 2/17/2026

**Test Information**

Test Method: LM-79-2019  
Report Number: P1356681  
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: 1ASL4-10-1-R63-UNV  
Description: 1FT 1000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND R63 LEDS 1 ROW  
Light Source: -  
Ballast/Driver: -

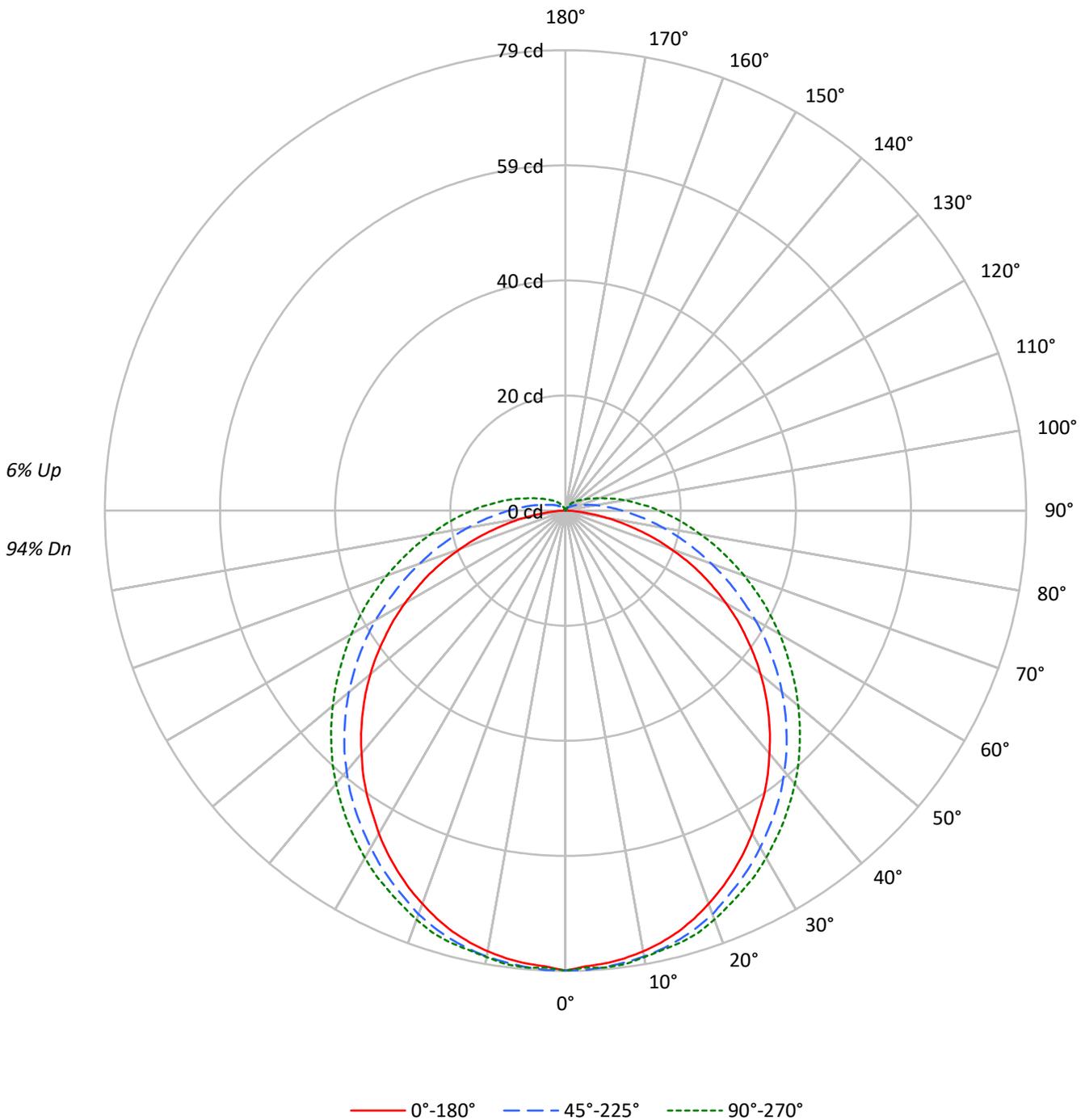
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 264.0 lumens  
Efficiency: N/A  
Efficacy: 40.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.29 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 0.98' x H: 0.1')  
CIE Type: Direct

Input Watts (W): 6.5  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: P1356681  
CATALOG NUMBER: 1ASL4-10-1-R63-UNV

### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	118	118	118	118	114	114	114	114	108	108	108	102	102	102	96	96	96	96	96	96	94
1	106	100	95	91	102	97	93	89	92	88	85	87	84	81	82	80	78	82	80	78	75
2	95	86	79	73	92	84	77	71	79	74	69	75	70	66	71	67	64	71	67	64	61
3	87	76	67	60	84	73	65	59	69	63	57	66	60	55	62	58	54	62	58	54	51
4	79	67	57	50	76	65	56	50	62	54	48	58	52	47	56	50	46	56	50	46	43
5	73	59	50	43	70	58	49	43	55	47	42	52	46	41	50	44	40	50	44	40	37
6	67	53	44	38	65	52	43	37	50	42	36	47	41	35	45	39	35	45	39	35	32
7	62	48	39	33	60	47	39	33	45	37	32	43	36	31	41	35	31	41	35	31	29
8	58	44	35	29	56	43	35	29	41	34	29	39	33	28	38	32	27	38	32	27	25
9	54	40	32	26	52	39	32	26	38	31	26	36	30	25	35	29	25	35	29	25	23
10	51	37	29	24	49	36	29	24	35	28	23	34	27	23	32	27	22	32	27	22	21

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2602	2602	2602
5°	2558	2536	2536
10°	2525	2473	2469
15°	2483	2407	2416
20°	2426	2335	2354
25°	2364	2251	2284
30°	2296	2172	2220
35°	2226	2094	2154
40°	2150	2014	2087
45°	2074	1929	2018
50°	1990	1839	1948
55°	1887	1741	1876
60°	1771	1639	1814
65°	1633	1527	1752
70°	1433	1414	1691
75°	1177	1307	1641
80°	853	1205	1610
85°	410	1122	1622

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2074 cd/sqm



TEST NUMBER: P1356681  
 CATALOG NUMBER: 1ASL4-10-1-R63-UNV

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	7.5	2.8
10°-20°	21.4	8.1
20°-30°	32.4	12.3
30°-40°	39.2	14.8
40°-50°	41.2	15.6
50°-60°	38.4	14.5
60°-70°	31.5	11.9
70°-80°	22.4	8.5
80°-90°	13.5	5.1
90°-100°	7.6	2.9
100°-110°	4.2	1.6
110°-120°	2.3	0.9
120°-130°	1.3	0.5
130°-140°	0.7	0.3
140°-150°	0.3	0.1
150°-160°	0.1	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
<b>0°-30°</b>	<b>61.3</b>	<b>23.2</b>
<b>0°-40°</b>	<b>100.5</b>	<b>38.1</b>
<b>0°-60°</b>	<b>180.0</b>	<b>68.2</b>
<b>0°-90°</b>	<b>247.4</b>	<b>93.7</b>
<b>90°-120°</b>	<b>14.1</b>	<b>5.3</b>
<b>90°-150°</b>	<b>16.5</b>	<b>6.2</b>
<b>90°-180°</b>	<b>17.0</b>	<b>6.4</b>
<b>0°-180°</b>	<b>264.0</b>	<b>100.0</b>

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	79	79	79	79	79	
5°	78	79	79	78	79	7
15°	75	76	76	76	77	21
25°	68	69	70	71	72	31
35°	59	61	63	64	65	37
45°	49	51	54	56	57	38
55°	38	40	43	46	47	34
65°	26	28	32	36	38	25
75°	13	16	22	26	28	14
85°	2	7	13	18	20	3
90°	0	4	10	14	16	0
95°	0	2	7	11	13	0
105°	0	1	4	7	8	0
115°	0	0	2	4	5	0
125°	0	0	1	3	3	0
135°	0	0	1	2	2	0
145°	0	0	0	1	1	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	78.9	78.9	78.9	78.9	78.9
2.5°	78.3	79.0	78.9	78.5	78.5
5°	78.0	78.7	78.6	78.5	78.7
7.5°	77.5	78.2	78.2	78.3	78.5
10°	76.8	77.7	77.7	77.7	77.8
12.5°	75.9	76.8	77.0	77.1	77.2
15°	74.8	75.7	76.1	76.4	76.7
17.5°	73.4	74.4	75.0	75.5	75.9
20°	71.8	72.9	73.7	74.2	74.7
22.5°	70.1	71.2	72.0	72.8	73.3
25°	68.2	69.4	70.4	71.4	71.9
27.5°	66.2	67.4	68.7	69.8	70.5
30°	64.0	65.4	66.8	68.2	68.8
32.5°	61.6	63.2	64.8	66.3	67.0
35°	59.4	60.9	62.8	64.4	65.2
37.5°	57.0	58.5	60.7	62.4	63.2
40°	54.4	56.1	58.4	60.3	61.2
42.5°	51.9	53.6	56.1	58.2	59.1
45°	49.2	51.0	53.6	55.8	56.8
47.5°	46.5	48.3	51.1	53.4	54.5
50°	43.7	45.7	48.5	51.0	52.1
52.5°	40.8	42.8	45.8	48.5	49.7
55°	37.8	40.0	43.1	45.9	47.2
57.5°	34.9	37.0	40.4	43.4	44.8
60°	31.8	34.1	37.6	40.9	42.4
62.5°	28.7	31.0	34.7	38.3	39.9
65°	25.7	28.0	32.0	35.8	37.5
67.5°	22.5	25.0	29.3	33.2	35.0
70°	19.2	22.0	26.6	30.8	32.6
72.5°	16.2	19.2	24.1	28.4	30.2
75°	12.9	16.2	21.6	26.0	27.9
77.5°	10.1	13.6	19.3	23.8	25.7
80°	7.2	11.2	17.0	21.7	23.5
82.5°	4.6	8.9	15.0	19.7	21.5
85°	2.4	7.0	13.0	17.8	19.6
87.5°	0.7	5.4	11.2	16.0	17.8
90°	0.0	4.1	9.7	14.3	16.0
92.5°	0.0	3.1	8.4	12.8	14.5
95°	0.0	2.4	7.1	11.2	12.8
97.5°	0.0	1.9	6.2	9.9	11.5
100°	0.0	1.5	5.3	8.7	10.3
102.5°	0.0	1.2	4.5	7.8	9.1
105°	0.0	0.9	3.7	6.8	8.0
107.5°	0.0	0.6	3.3	6.0	7.0
110°	0.0	0.5	2.9	5.2	6.2



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

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	0.4	2.6	4.6	5.5
115°	0.0	0.4	2.3	4.1	4.9
117.5°	0.0	0.4	2.0	3.7	4.4
120°	0.0	0.4	1.8	3.3	3.9
122.5°	0.0	0.3	1.6	2.9	3.6
125°	0.0	0.3	1.4	2.7	3.1
127.5°	0.0	0.2	1.2	2.4	2.9
130°	0.0	0.2	1.2	2.1	2.6
132.5°	0.0	0.1	1.1	2.0	2.3
135°	0.0	0.1	0.9	1.7	2.1
137.5°	0.0	0.0	0.8	1.5	1.9
140°	0.0	0.0	0.6	1.3	1.7
142.5°	0.1	0.0	0.5	1.2	1.4
145°	0.1	0.0	0.4	1.0	1.2
147.5°	0.1	0.1	0.3	0.8	1.0
150°	0.1	0.1	0.2	0.5	0.8
152.5°	0.1	0.1	0.1	0.4	0.5
155°	0.1	0.1	0.0	0.3	0.4
157.5°	0.1	0.1	0.0	0.1	0.2
160°	0.1	0.1	0.0	0.0	0.1
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	12.63	14.18	13.09	14.63	15.09	14.37	15.92	14.83	16.36	16.83
	3H	14.13	15.54	14.60	16.00	16.51	16.69	18.10	17.16	18.55	19.06
	4H	14.61	15.95	15.10	16.42	16.94	17.77	19.11	18.26	19.58	20.10
	6H	14.89	16.14	15.39	16.62	17.16	18.85	20.10	19.36	20.59	21.12
	8H	14.94	16.14	15.46	16.64	17.19	19.38	20.58	19.90	21.09	21.63
	12H	14.95	16.10	15.48	16.60	17.18	19.93	21.07	20.45	21.58	22.15
4H	2H	13.45	14.79	13.94	15.26	15.78	14.82	16.16	15.31	16.63	17.15
	3H	15.18	16.32	15.69	16.84	17.38	17.36	18.50	17.86	19.01	19.56
	4H	15.78	16.83	16.31	17.35	17.93	18.61	19.65	19.14	20.18	20.76
	6H	16.18	17.10	16.73	17.65	18.25	19.88	20.80	20.43	21.36	21.95
	8H	16.27	17.14	16.83	17.69	18.30	20.51	21.38	21.06	21.93	22.54
	12H	16.32	17.11	16.89	17.68	18.29	21.18	21.96	21.75	22.54	23.15
8H	4H	16.38	17.25	16.93	17.80	18.41	18.83	19.70	19.38	20.25	20.85
	6H	16.95	17.68	17.53	18.28	18.89	20.27	21.01	20.86	21.60	22.21
	8H	17.13	17.79	17.72	18.39	19.02	21.04	21.70	21.64	22.31	22.93
	12H	17.24	17.83	17.83	18.42	19.11	21.88	22.48	22.48	23.07	23.76
12H	4H	16.54	17.33	17.11	17.91	18.52	18.84	19.63	19.41	20.21	20.82
	6H	17.19	17.86	17.79	18.46	19.08	20.31	20.98	20.91	21.58	22.20
	8H	17.46	18.05	18.06	18.64	19.33	21.15	21.74	21.75	22.33	23.03

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

REPORT NUMBER: SP1-2511-597-7

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

REPORT NUMBER: SP1-2511-597-7

CIE 1931 Chromaticity Diagram



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

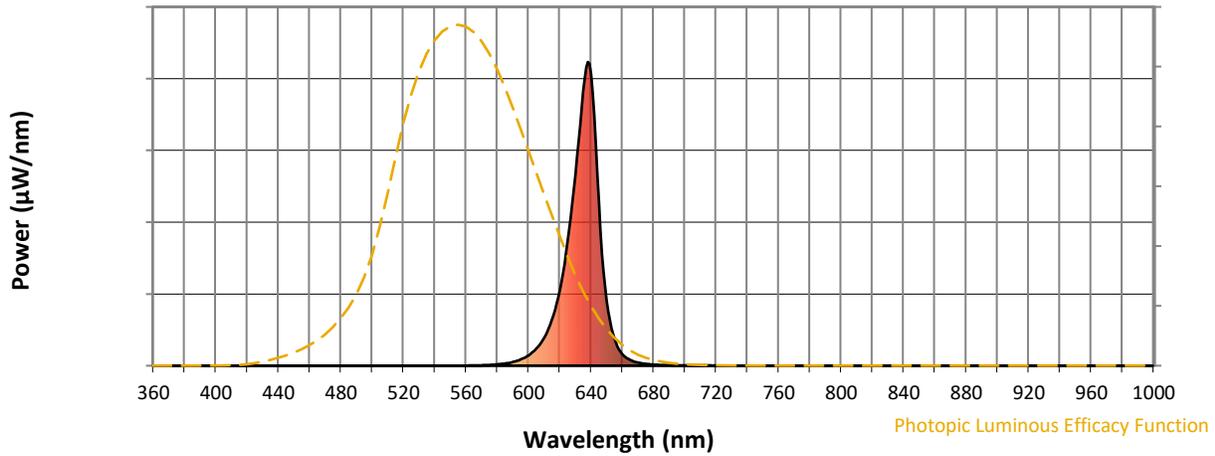


CCT = 0K  
 CIE x = 0.7004  
 CIE y = 0.2995  
 Duv = 0.0000

Point lies outside the range

REPORT NUMBER: SP1-2511-597-7

**Photopic Flux vs. Wavelength**

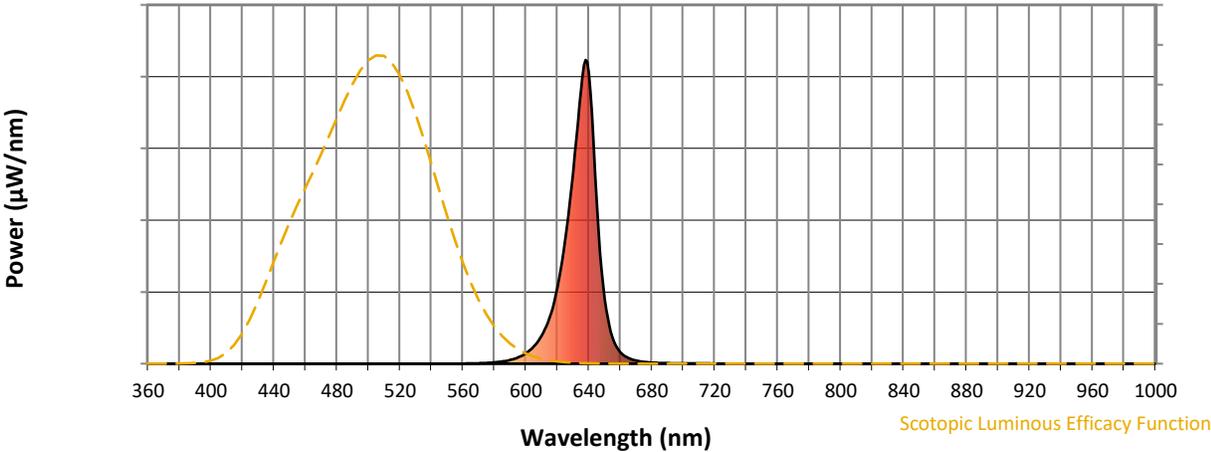


**Photopic Lumens: NR**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /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			

REPORT NUMBER: SP1-2511-597-7

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 0.05**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /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			

REPORT NUMBER: SP1-2511-597-7

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: NR**

**M/P: 0.02**

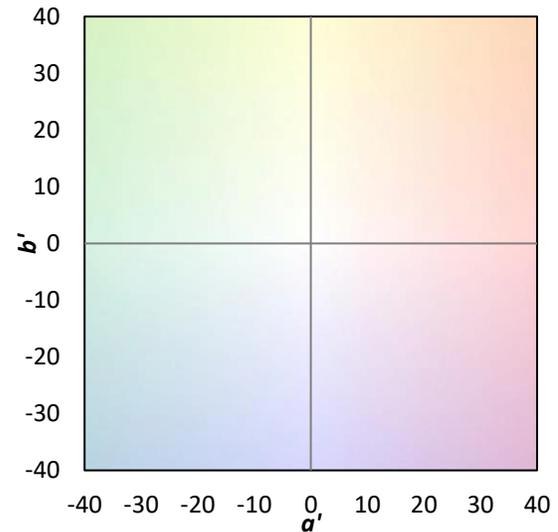
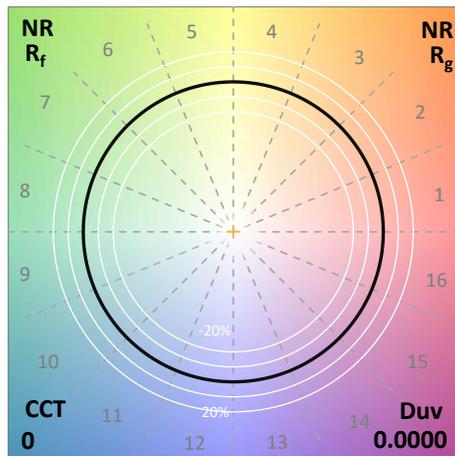
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	0	NR	620	248	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	409	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)