

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: P1357040

Luminaire Tested: 3ASL4-20VHE-3-G52-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1357040
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2511-597-12)
Test Lab: INNOVATION CENTER
Issue Date: 2/17/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: 3ASL4-20VHE-3-G52-UNV
Description: 3FT 2000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND G52 LEDS 3 ROW
Light Source: -
Ballast/Driver: -

Summary

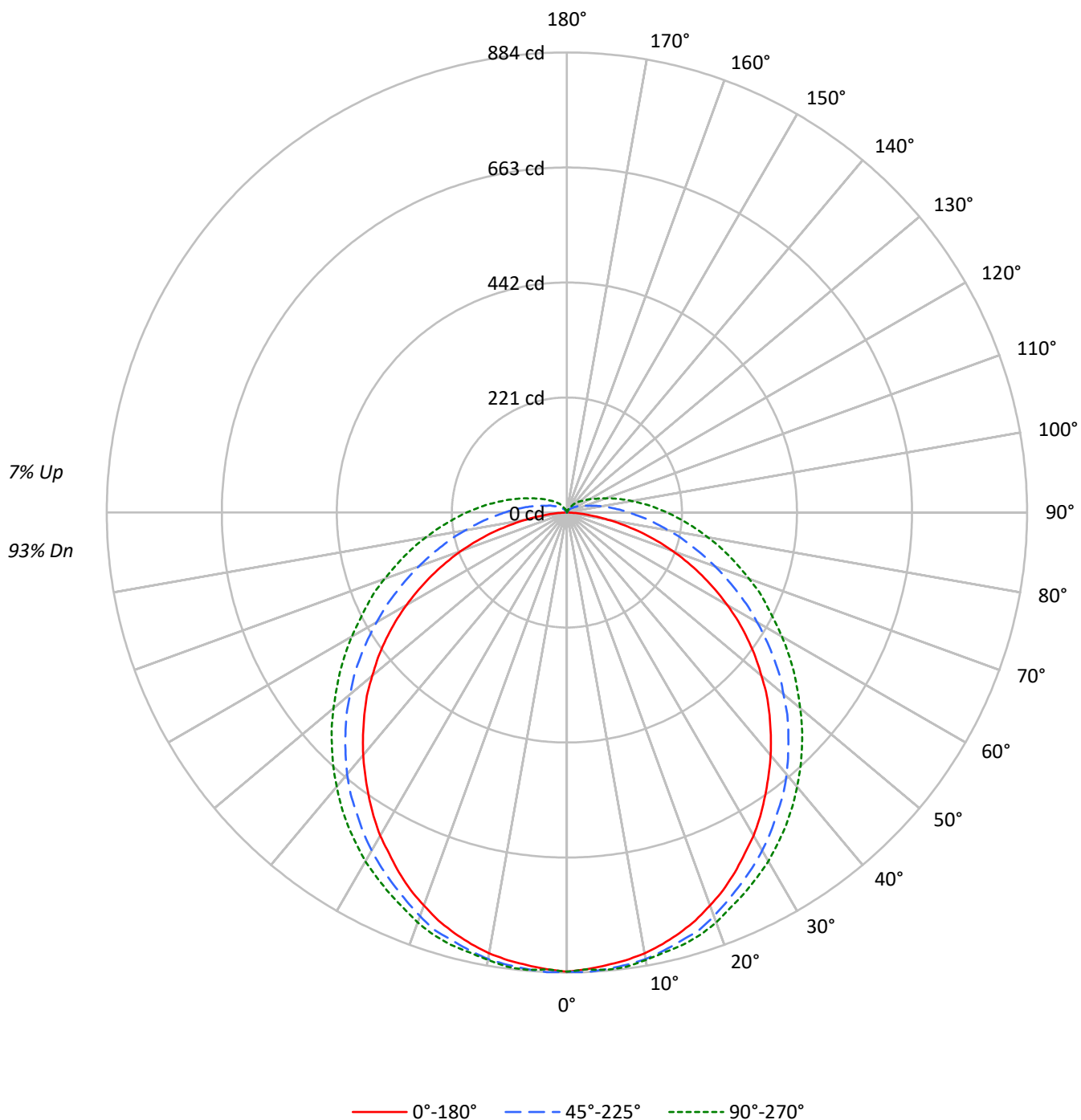
Lumens per Lamp: N/A
Luminaire Lumens: 3000.0 lumens
Efficiency: N/A
Efficacy: 51.7 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 2.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 58
Input Voltage (V): NR
Input Current (Ain): 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

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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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	117	117	117	117	114	114	114	114	107	107	107		101	101	101		96
1	105	100	95	91	102	97	92	88	91	88	84		86	83	80		81
2	95	86	79	72	92	84	77	71	79	73	68		75	70	66		71
3	86	75	67	60	83	73	65	59	69	62	57		65	60	55		62
4	79	66	57	50	76	65	56	49	61	54	48		58	52	47		55
5	73	59	50	43	70	58	49	42	55	47	41		52	45	40		49
6	67	53	44	37	64	52	43	37	49	42	36		47	40	35		45
7	62	48	39	33	60	47	38	32	45	37	32		43	36	31		41
8	58	44	35	29	56	43	35	29	41	34	28		39	32	28		37
9	54	40	32	26	52	39	31	26	38	30	25		36	30	25		35
10	50	37	29	24	49	36	29	23	35	28	23		33	27	23		32

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	9563	9563	9563
5°	9472	9379	9345
10°	9411	9192	9109
15°	9300	8962	8908
20°	9152	8740	8682
25°	8980	8464	8425
30°	8799	8224	8208
35°	8576	7953	7967
40°	8372	7704	7711
45°	8151	7404	7456
50°	7898	7083	7190
55°	7626	6775	6951
60°	7275	6416	6708
65°	6828	6071	6507
70°	6260	5727	6350
75°	5438	5409	6242
80°	4204	5166	6196
85°	2444	5091	6286

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 8151 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	83.7	2.8
10°-20°	240.2	8.0
20°-30°	363.2	12.1
30°-40°	439.8	14.7
40°-50°	461.9	15.4
50°-60°	431.0	14.4
60°-70°	356.1	11.9
70°-80°	256.4	8.5
80°-90°	159.3	5.3
90°-100°	93.4	3.1
100°-110°	53.4	1.8
110°-120°	30.2	1.0
120°-130°	17.4	0.6
130°-140°	9.3	0.3
140°-150°	3.9	0.1
150°-160°	0.7	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	687.1	22.9
0°-40°	1126.9	37.6
0°-60°	2019.8	67.3
0°-90°	2791.7	93.1
90°-120°	177.0	5.9
90°-150°	207.6	6.9
90°-180°	208.0	6.9
0°-180°	3000.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	882	882	882	882	882	
5°	873	880	880	880	882	83
15°	836	848	851	857	860	236
25°	763	776	789	800	807	351
35°	664	682	704	725	734	416
45°	550	570	602	627	638	425
55°	424	448	484	519	532	379
65°	286	314	361	407	424	283
75°	147	183	248	301	323	155
85°	28	82	156	211	231	34
90°	0	50	119	171	193	1
95°	0	31	90	138	158	0
105°	0	11	50	86	101	0
115°	0	6	29	53	62	0
125°	0	4	18	35	40	0
135°	0	0	11	22	28	0
145°	0	0	6	13	15	0
155°	0	0	0	4	6	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	882.3	882.3	882.3	882.3	882.3
2.5°	878.7	884.2	884.2	878.7	878.7
5°	873.2	880.5	880.5	880.5	882.3
7.5°	867.7	876.8	876.8	876.8	880.5
10°	860.3	869.5	871.3	871.3	873.2
12.5°	849.3	860.3	862.2	864.0	865.8
15°	836.5	847.5	851.2	856.7	860.3
17.5°	821.8	834.6	842.0	847.5	851.2
20°	803.5	816.3	825.5	832.8	838.3
22.5°	785.1	796.1	807.1	816.3	821.8
25°	763.1	775.9	788.8	799.8	807.1
27.5°	739.3	753.9	770.4	783.3	790.6
30°	717.2	731.9	750.3	766.8	774.1
32.5°	691.6	708.1	728.3	744.8	753.9
35°	664.0	682.4	704.4	724.6	733.8
37.5°	636.5	654.9	682.4	702.6	711.7
40°	609.0	627.4	656.7	678.7	687.9
42.5°	579.7	598.0	629.2	653.0	664.0
45°	550.3	570.5	601.7	627.4	638.4
47.5°	521.0	541.1	574.2	601.7	612.7
50°	487.9	510.0	543.0	574.2	585.2
52.5°	456.8	478.8	515.5	546.6	557.7
55°	423.7	447.6	484.3	519.1	532.0
57.5°	390.7	414.6	453.1	489.8	504.5
60°	355.9	381.6	421.9	460.4	476.9
62.5°	321.0	348.5	392.6	432.9	449.4
65°	286.2	313.7	361.4	407.2	423.7
67.5°	251.3	280.7	332.0	379.7	399.9
70°	216.5	247.6	302.7	352.2	372.4
72.5°	181.6	214.6	275.2	326.5	346.7
75°	146.8	183.4	247.6	300.8	322.9
77.5°	111.9	154.1	223.8	277.0	299.0
80°	80.7	128.4	198.1	253.1	275.2
82.5°	51.4	102.7	176.1	231.1	253.1
85°	27.5	82.5	155.9	211.0	231.1
87.5°	9.2	64.2	135.7	190.8	211.0
90°	0.0	49.5	119.2	170.6	192.6
92.5°	0.0	38.5	104.6	154.1	174.3
95°	0.0	31.2	89.9	137.6	157.8
97.5°	0.0	25.7	78.9	122.9	141.2
100°	0.0	20.2	67.9	110.1	126.6
102.5°	0.0	16.5	58.7	97.2	113.7
105°	0.0	11.0	49.5	86.2	100.9
107.5°	0.0	9.2	42.2	77.0	89.9
110°	0.0	7.3	38.5	66.0	78.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	5.5	34.9	58.7	71.5
115°	0.0	5.5	29.4	53.2	62.4
117.5°	0.0	5.5	25.7	47.7	56.9
120°	0.0	3.7	23.8	42.2	51.4
122.5°	0.0	3.7	20.2	38.5	45.9
125°	0.0	3.7	18.3	34.9	40.4
127.5°	0.0	1.8	16.5	31.2	36.7
130°	0.0	1.8	14.7	27.5	33.0
132.5°	0.0	1.8	12.8	25.7	31.2
135°	0.0	0.0	11.0	22.0	27.5
137.5°	0.0	0.0	9.2	20.2	23.8
140°	0.0	0.0	7.3	16.5	22.0
142.5°	0.0	0.0	5.5	14.7	18.3
145°	0.0	0.0	5.5	12.8	14.7
147.5°	0.0	0.0	3.7	9.2	12.8
150°	0.0	0.0	1.8	7.3	9.2
152.5°	0.0	0.0	0.0	5.5	7.3
155°	0.0	0.0	0.0	3.7	5.5
157.5°	0.0	0.0	0.0	0.0	1.8
160°	0.0	0.0	0.0	0.0	0.0
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	17.17	18.71	17.64	19.16	19.65	19.17	20.71	19.64	21.16	21.64
	3H	18.67	20.07	19.15	20.53	21.06	21.62	23.02	22.10	23.49	24.01
	4H	19.15	20.48	19.65	20.96	21.50	22.80	24.14	23.31	24.62	25.16
	6H	19.42	20.66	19.94	21.16	21.71	24.04	25.28	24.55	25.77	26.33
	8H	19.47	20.66	20.00	21.18	21.74	24.67	25.86	25.20	26.38	26.94
	12H	19.49	20.63	20.02	21.14	21.73	25.36	26.50	25.89	27.01	27.60
4H	2H	18.04	19.37	18.54	19.85	20.39	19.60	20.93	20.11	21.42	21.95
	3H	19.77	20.91	20.29	21.43	22.00	22.28	23.41	22.79	23.94	24.50
	4H	20.38	21.42	20.91	21.95	22.55	23.64	24.68	24.17	25.21	25.80
	6H	20.78	21.69	21.33	22.26	22.86	25.06	25.98	25.62	26.54	27.15
	8H	20.87	21.73	21.43	22.30	22.92	25.80	26.67	26.36	27.23	27.85
	12H	20.92	21.70	21.50	22.29	22.92	26.62	27.40	27.20	27.99	28.61
8H	4H	21.05	21.92	21.61	22.48	23.10	23.85	24.72	24.41	25.28	25.90
	6H	21.63	22.36	22.22	22.97	23.59	25.45	26.18	26.04	26.79	27.41
	8H	21.81	22.47	22.42	23.09	23.73	26.33	26.99	26.94	27.61	28.24
	12H	21.93	22.52	22.54	23.12	23.83	27.33	27.92	27.94	28.52	29.23
12H	4H	21.24	22.03	21.83	22.62	23.24	23.86	24.65	24.44	25.24	25.86
	6H	21.92	22.58	22.53	23.20	23.84	25.49	26.15	26.09	26.77	27.40
	8H	22.20	22.79	22.81	23.39	24.10	26.44	27.03	27.05	27.63	28.34

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

Report Prepared for

Cooper Lighting Solutions

Fail-Safe

Report Number: SP1-2511-597-8

Test Date: 01/22/2026

Luminaire Tested: 4ASL-2-G520-UNV-OPL-1_600mA

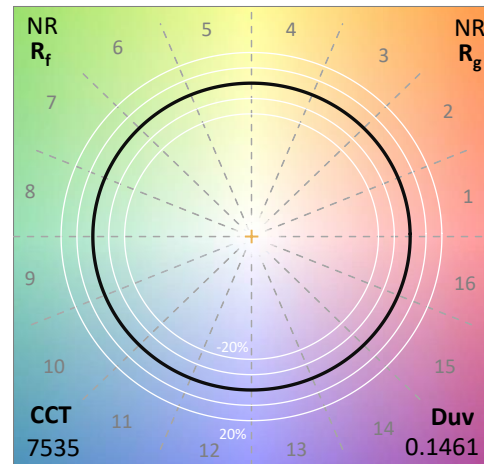
Data in this report applies to families of products including 4ASL

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2511-597-8
 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-G520-UNV-OPL-1_600mA**
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND GREEN 520NM LEDS with 1 rows at 600mA

Spectral Parameters

CCT (K):	7535	CRI (Ra):	-11.7		
CIE u':	0.0718	R1:	-30.6	R9:	-351.9
CIE v':	0.5710	R2:	5.1	R10:	-75.5
Duv:	0.1461	R3:	5.6	R11:	-78.0
CIE x:	0.1962	R4:	-51.7	R12:	-14.7
CIE y:	0.6931	R5:	-6.4	R13:	-32.5
CIE z:	0.1107	R6:	-0.6	R14:	52.7
Peak Wavelength (nm):	524	R7:	10.9	R15:	-37.0
Dominant Wavelength (nm):	529	R8:	-25.8		
Purity:	75.95236				
Rf:	NR				
Rg:	NR				



Test Conditions

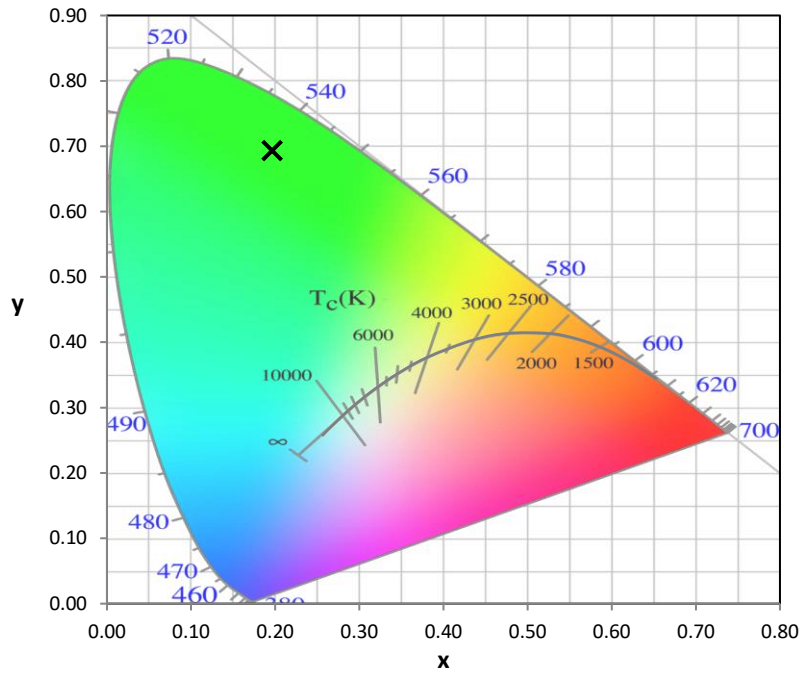
Stabilization Time: 48M
 Operation Time: 1H 48M
 Sphere Temperature (°C): 25.1

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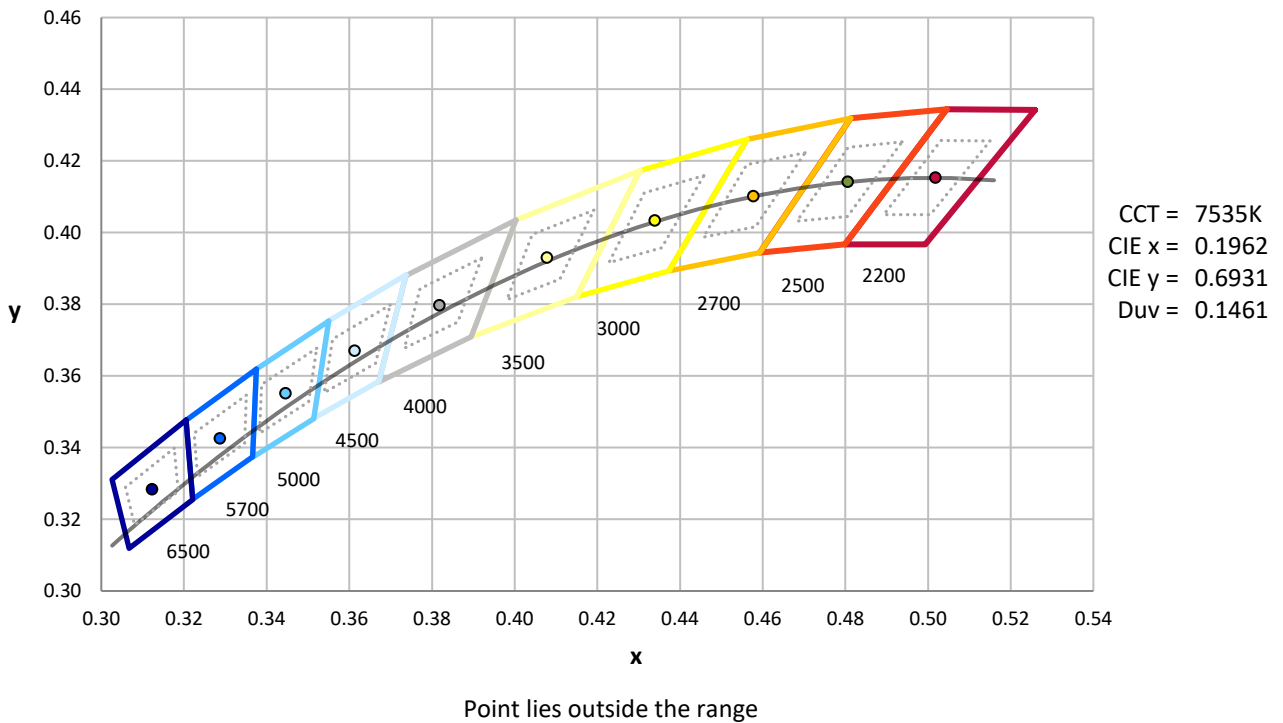
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	12/16/2025	6/16/2026
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208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

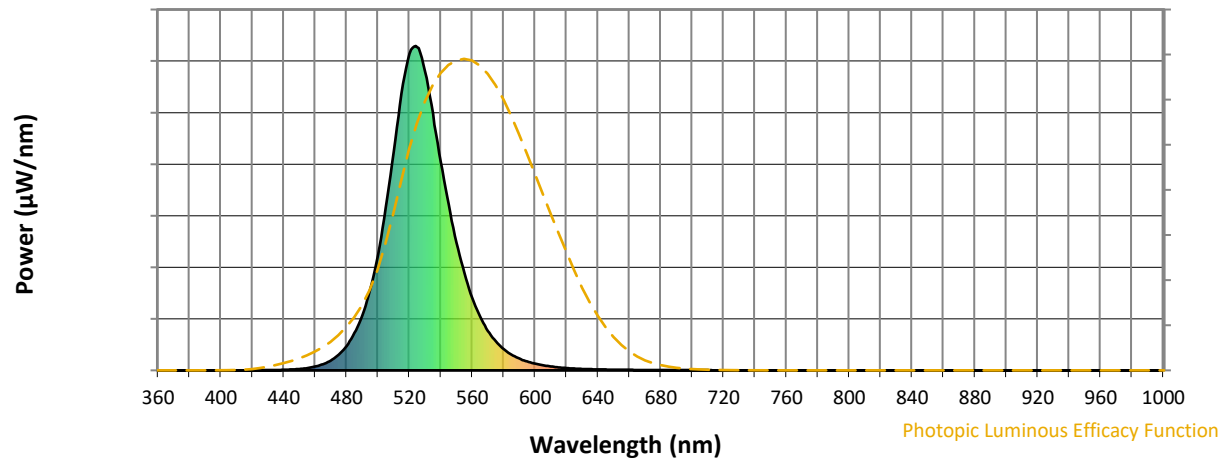


CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



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Photopic Flux vs. Wavelength

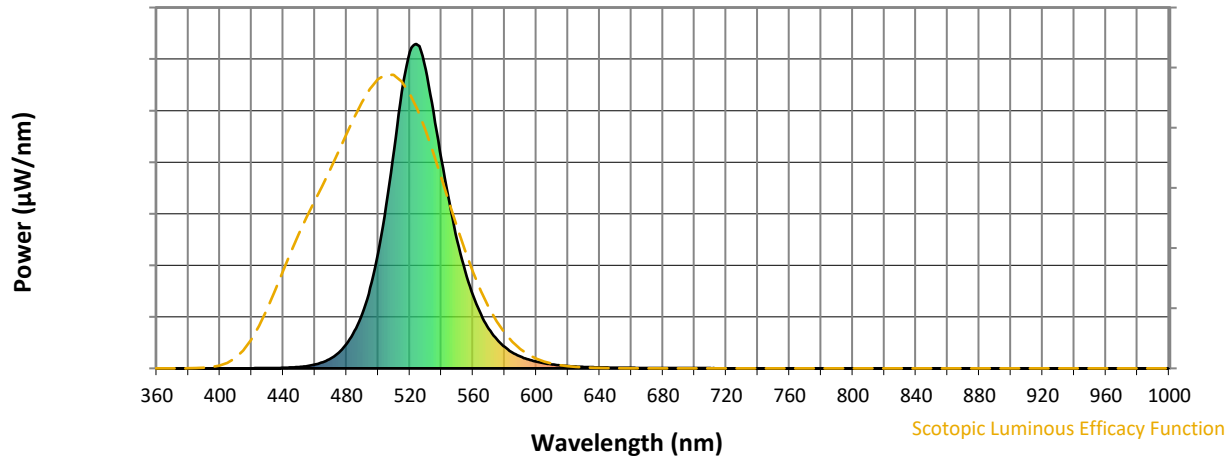


Photopic Lumens: NR

λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)
360	0	NR	490	169	NR	620	7	NR	750	0	NR	880	0	NR
365	0	NR	495	249	NR	625	6	NR	755	0	NR	885	0	NR
370	0	NR	500	356	NR	630	4	NR	760	0	NR	890	0	NR
375	0	NR	505	502	NR	635	4	NR	765	0	NR	895	0	NR
380	0	NR	510	674	NR	640	3	NR	770	0	NR	900	0	NR
385	0	NR	515	853	NR	645	3	NR	775	0	NR	905	0	NR
390	0	NR	520	976	NR	650	2	NR	780	0	NR	910	0	NR
395	0	NR	525	996	NR	655	2	NR	785	0	NR	915	0	NR
400	0	NR	530	920	NR	660	2	NR	790	0	NR	920	0	NR
405	0	NR	535	792	NR	665	1	NR	795	0	NR	925	0	NR
410	0	NR	540	642	NR	670	1	NR	800	0	NR	930	0	NR
415	0	NR	545	511	NR	675	1	NR	805	0	NR	935	0	NR
420	0	NR	550	394	NR	680	1	NR	810	0	NR	940	0	NR
425	1	NR	555	300	NR	685	1	NR	815	0	NR	945	0	NR
430	1	NR	560	224	NR	690	1	NR	820	0	NR	950	0	NR
435	1	NR	565	166	NR	695	1	NR	825	0	NR	955	0	NR
440	2	NR	570	122	NR	700	1	NR	830	0	NR	960	0	NR
445	3	NR	575	90	NR	705	1	NR	835	0	NR	965	0	NR
450	4	NR	580	66	NR	710	1	NR	840	0	NR	970	0	NR
455	7	NR	585	48	NR	715	0	NR	845	0	NR	975	0	NR
460	12	NR	590	36	NR	720	0	NR	850	0	NR	980	0	NR
465	19	NR	595	27	NR	725	0	NR	855	0	NR	985	0	NR
470	31	NR	600	21	NR	730	0	NR	860	0	NR	990	0	NR
475	49	NR	605	16	NR	735	0	NR	865	0	NR	995	0	NR
480	75	NR	610	12	NR	740	0	NR	870	0	NR	1000	0	NR
485	115	NR	615	9	NR	745	0	NR	875	0	NR			

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Scotopic Flux vs. Wavelength

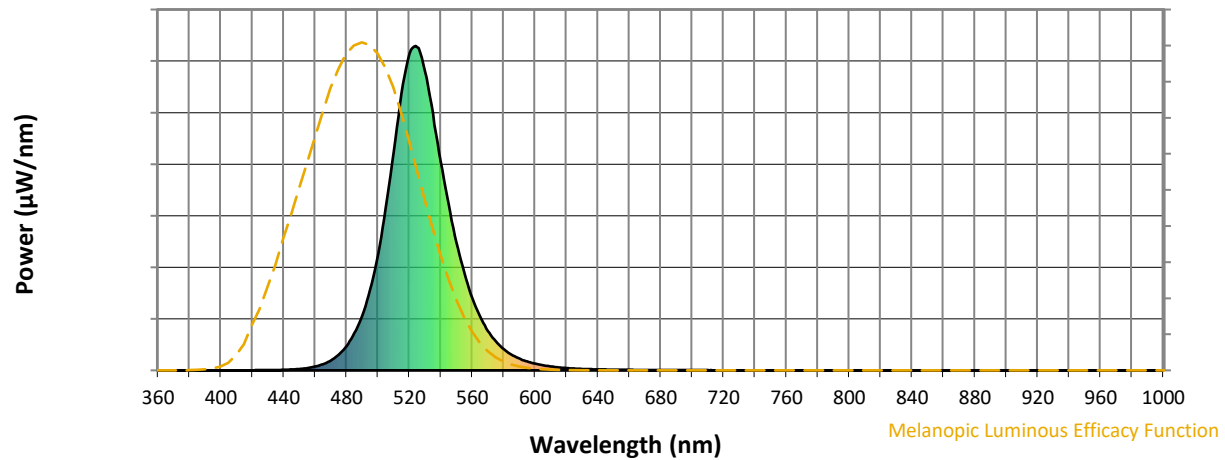


Scotopic Lumens: NR

S/P: 2.63

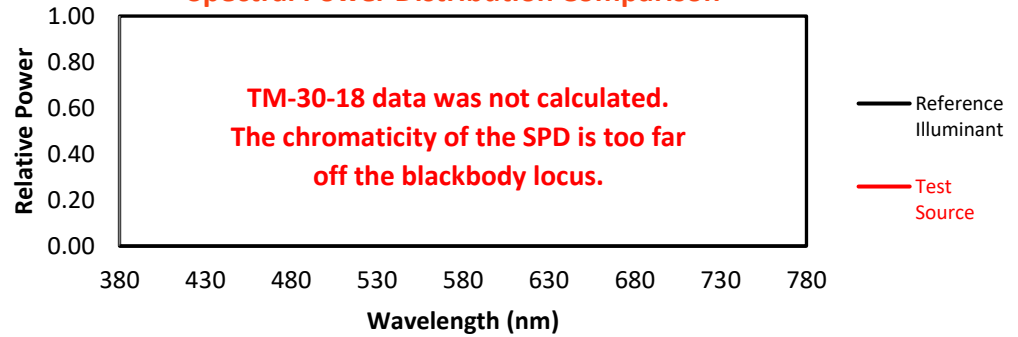
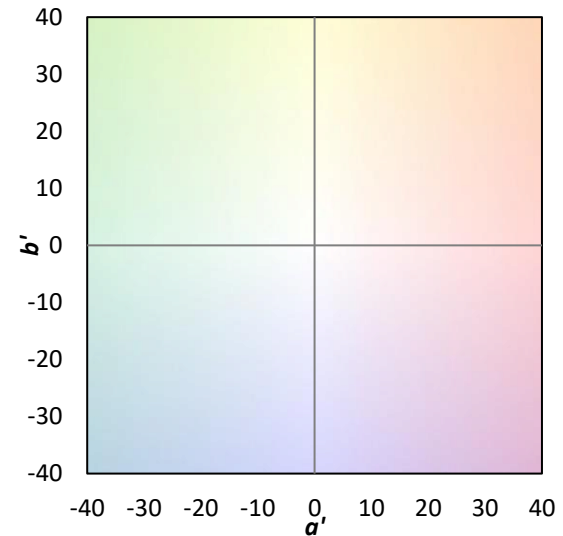
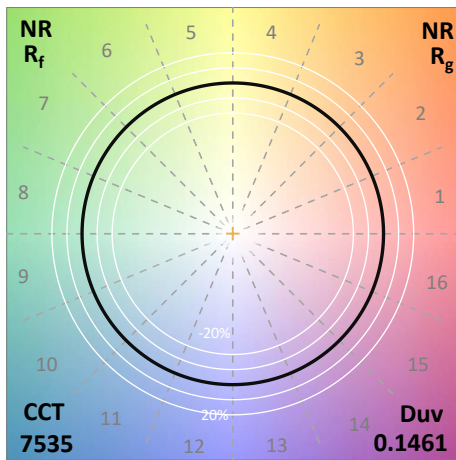
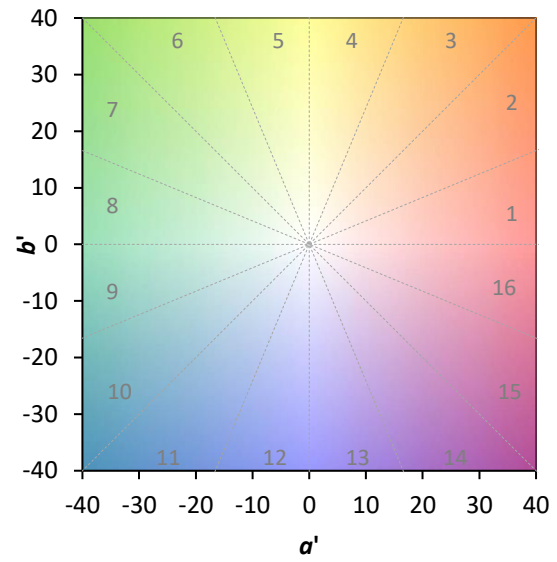
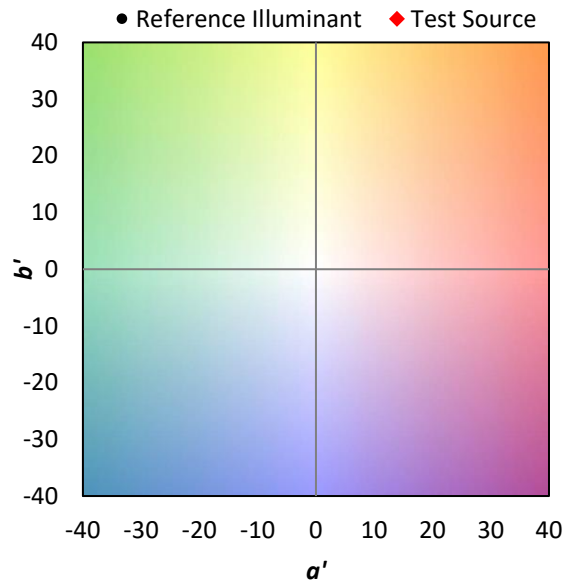
λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)
360	0	NR	490	169	NR	620	7	NR	750	0	NR	880	0	NR
365	0	NR	495	249	NR	625	6	NR	755	0	NR	885	0	NR
370	0	NR	500	356	NR	630	4	NR	760	0	NR	890	0	NR
375	0	NR	505	502	NR	635	4	NR	765	0	NR	895	0	NR
380	0	NR	510	674	NR	640	3	NR	770	0	NR	900	0	NR
385	0	NR	515	853	NR	645	3	NR	775	0	NR	905	0	NR
390	0	NR	520	976	NR	650	2	NR	780	0	NR	910	0	NR
395	0	NR	525	996	NR	655	2	NR	785	0	NR	915	0	NR
400	0	NR	530	920	NR	660	2	NR	790	0	NR	920	0	NR
405	0	NR	535	792	NR	665	1	NR	795	0	NR	925	0	NR
410	0	NR	540	642	NR	670	1	NR	800	0	NR	930	0	NR
415	0	NR	545	511	NR	675	1	NR	805	0	NR	935	0	NR
420	0	NR	550	394	NR	680	1	NR	810	0	NR	940	0	NR
425	1	NR	555	300	NR	685	1	NR	815	0	NR	945	0	NR
430	1	NR	560	224	NR	690	1	NR	820	0	NR	950	0	NR
435	1	NR	565	166	NR	695	1	NR	825	0	NR	955	0	NR
440	2	NR	570	122	NR	700	1	NR	830	0	NR	960	0	NR
445	3	NR	575	90	NR	705	1	NR	835	0	NR	965	0	NR
450	4	NR	580	66	NR	710	1	NR	840	0	NR	970	0	NR
455	7	NR	585	48	NR	715	0	NR	845	0	NR	975	0	NR
460	12	NR	590	36	NR	720	0	NR	850	0	NR	980	0	NR
465	19	NR	595	27	NR	725	0	NR	855	0	NR	985	0	NR
470	31	NR	600	21	NR	730	0	NR	860	0	NR	990	0	NR
475	49	NR	605	16	NR	735	0	NR	865	0	NR	995	0	NR
480	75	NR	610	12	NR	740	0	NR	870	0	NR	1000	0	NR
485	115	NR	615	9	NR	745	0	NR	875	0	NR			

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Melanopic Flux vs. Wavelength

Melanopic Lumens: NR
M/P: 4.87

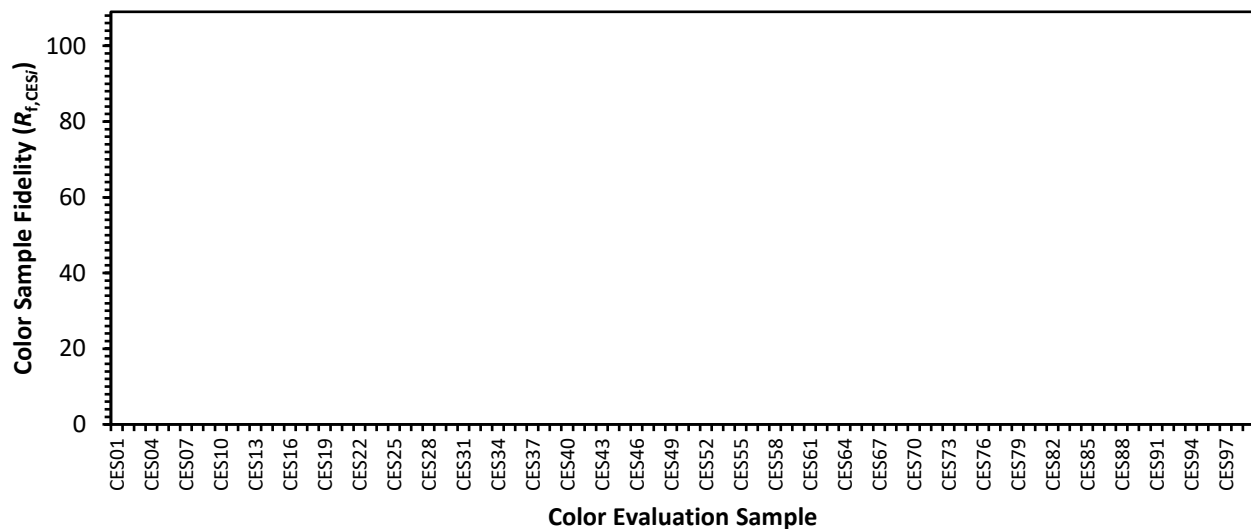
λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	169	NR	620	7	NR	750	0	NR	880	0	NR
365	0	NR	495	249	NR	625	6	NR	755	0	NR	885	0	NR
370	0	NR	500	356	NR	630	4	NR	760	0	NR	890	0	NR
375	0	NR	505	502	NR	635	4	NR	765	0	NR	895	0	NR
380	0	NR	510	674	NR	640	3	NR	770	0	NR	900	0	NR
385	0	NR	515	853	NR	645	3	NR	775	0	NR	905	0	NR
390	0	NR	520	976	NR	650	2	NR	780	0	NR	910	0	NR
395	0	NR	525	996	NR	655	2	NR	785	0	NR	915	0	NR
400	0	NR	530	920	NR	660	2	NR	790	0	NR	920	0	NR
405	0	NR	535	792	NR	665	1	NR	795	0	NR	925	0	NR
410	0	NR	540	642	NR	670	1	NR	800	0	NR	930	0	NR
415	0	NR	545	511	NR	675	1	NR	805	0	NR	935	0	NR
420	0	NR	550	394	NR	680	1	NR	810	0	NR	940	0	NR
425	1	NR	555	300	NR	685	1	NR	815	0	NR	945	0	NR
430	1	NR	560	224	NR	690	1	NR	820	0	NR	950	0	NR
435	1	NR	565	166	NR	695	1	NR	825	0	NR	955	0	NR
440	2	NR	570	122	NR	700	1	NR	830	0	NR	960	0	NR
445	3	NR	575	90	NR	705	1	NR	835	0	NR	965	0	NR
450	4	NR	580	66	NR	710	1	NR	840	0	NR	970	0	NR
455	7	NR	585	48	NR	715	0	NR	845	0	NR	975	0	NR
460	12	NR	590	36	NR	720	0	NR	850	0	NR	980	0	NR
465	19	NR	595	27	NR	725	0	NR	855	0	NR	985	0	NR
470	31	NR	600	21	NR	730	0	NR	860	0	NR	990	0	NR
475	49	NR	605	16	NR	735	0	NR	865	0	NR	995	0	NR
480	75	NR	610	12	NR	740	0	NR	870	0	NR	1000	0	NR
485	115	NR	615	9	NR	745	0	NR	875	0	NR			

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Summary
 $R_f = 0$
 $R_g = 0$
 CIE $R_a = -11.7$
 $R_g = -351.9$
Spectral Power Distribution Comparison

Color Vector Graphics


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

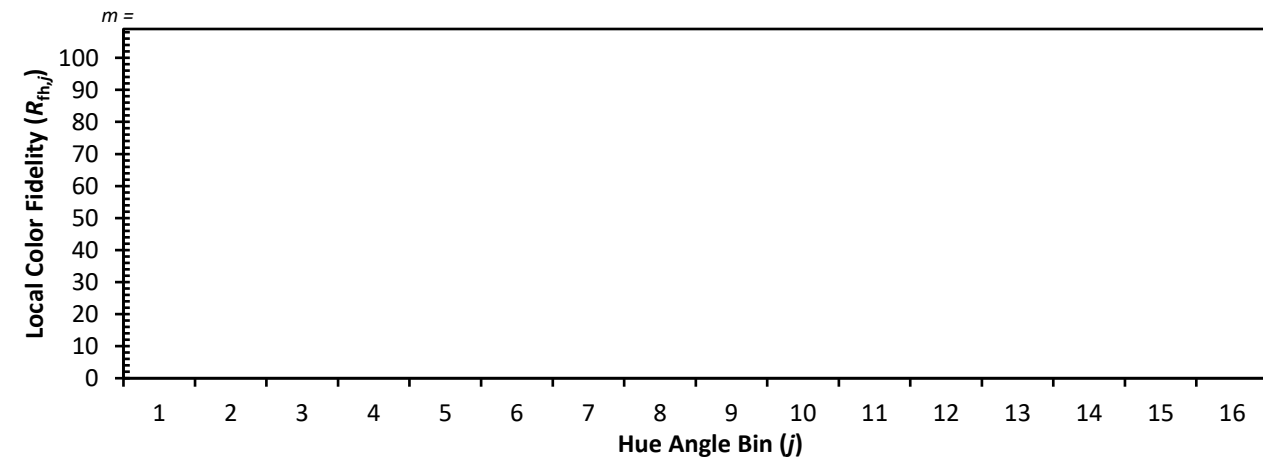
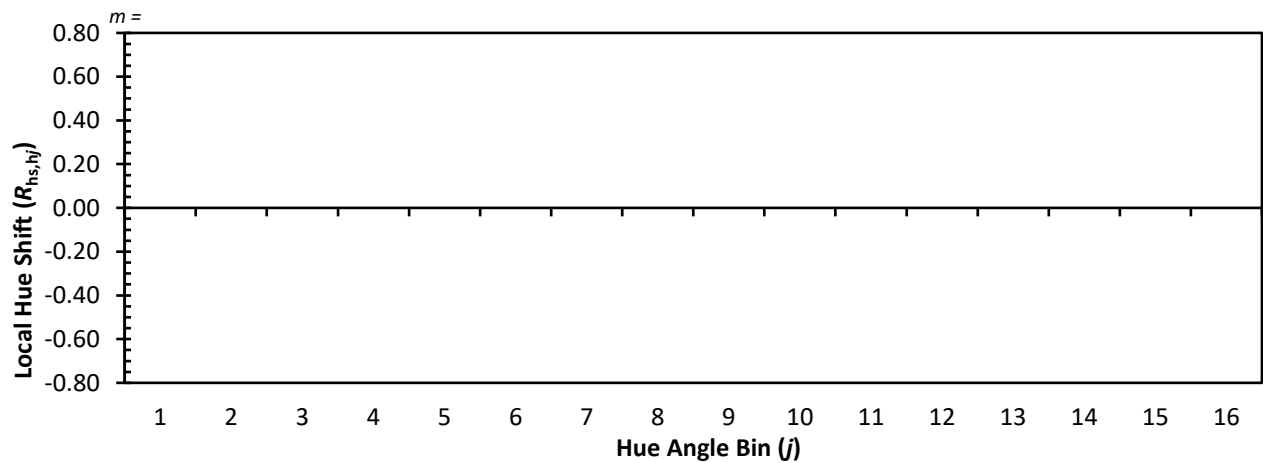
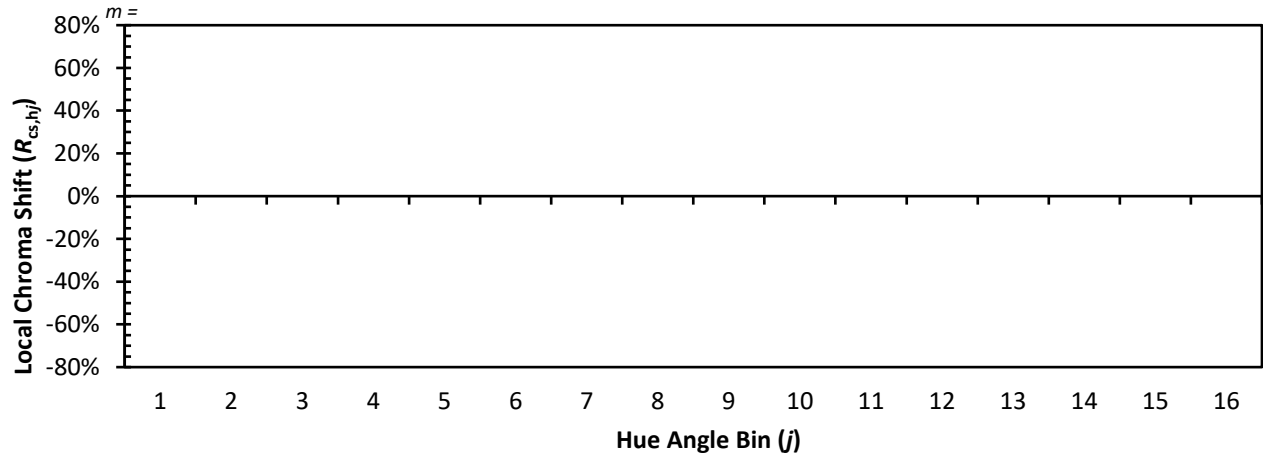
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CES07 = 0	CES32 = 0	CES57 = 0	CES82 = 0
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CES16 = 0	CES41 = 0	CES66 = 0	CES91 = 0
CES17 = 0	CES42 = 0	CES67 = 0	CES92 = 0
CES18 = 0	CES43 = 0	CES68 = 0	CES93 = 0
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CES20 = 0	CES45 = 0	CES70 = 0	CES95 = 0
CES21 = 0	CES46 = 0	CES71 = 0	CES96 = 0
CES22 = 0	CES47 = 0	CES72 = 0	CES97 = 0
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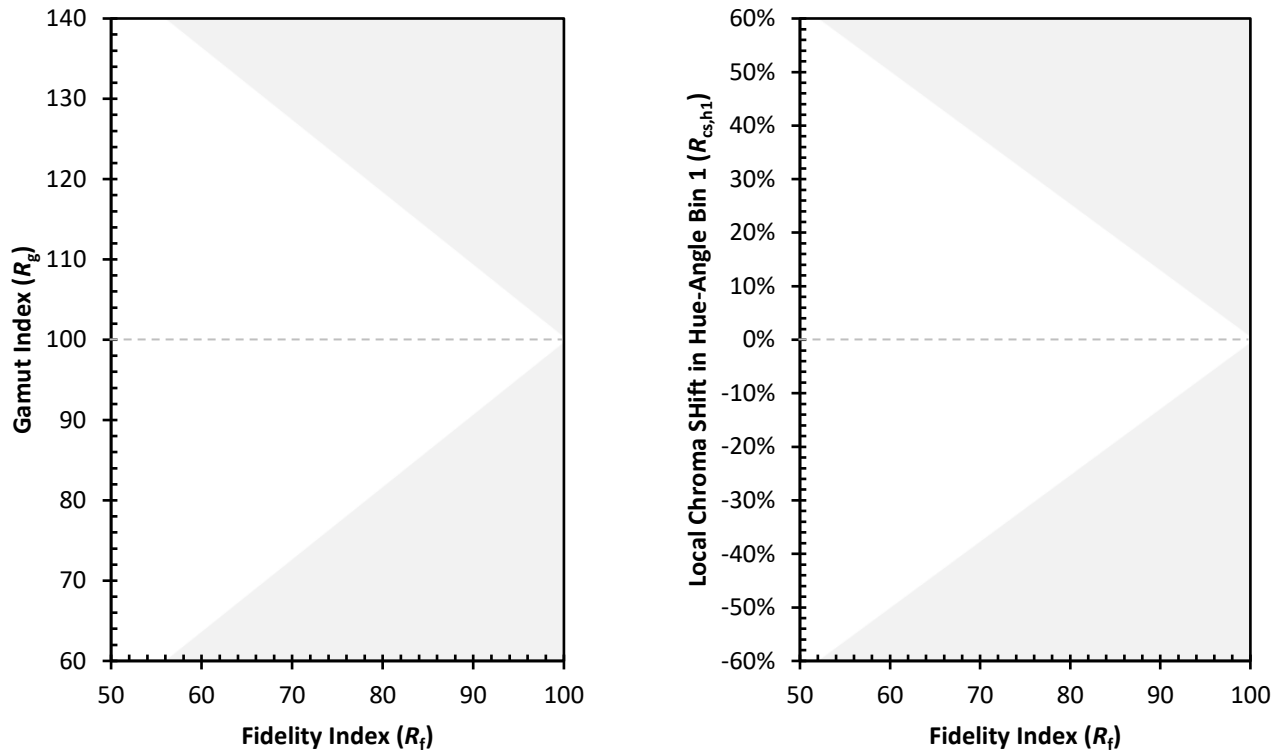
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)