

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: P1357055

Luminaire Tested: 3ASL4-30VHE-3-50-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1357055
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: 3ASL4-30VHE-3-50-UNV
Description: 3FT 3000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND 5000K LEDS 3 ROW
Light Source: -
Ballast/Driver: -

Summary

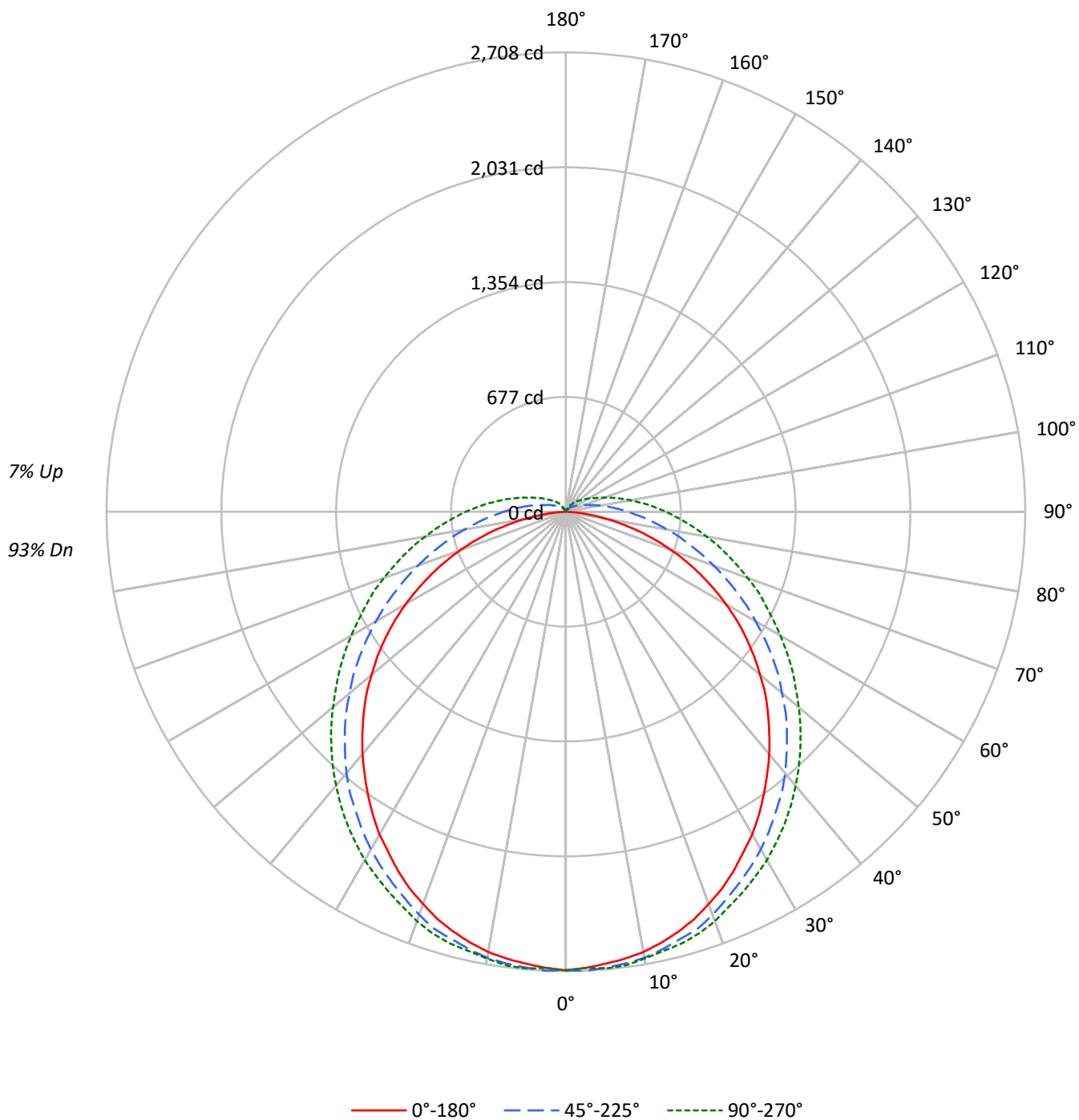
Lumens per Lamp: N/A
Luminaire Lumens: 9189.0 lumens
Efficiency: N/A
Efficacy: 116.5 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 2.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 78.9
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

TEST NUMBER: P1357055

CATALOG NUMBER: 3ASL4-30VHE-3-50-UNV

Luminous Intensity Polar Plot



TEST NUMBER: P1357055

CATALOG NUMBER: 3ASL4-30VHE-3-50-UNV

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
RCR																				
0	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	96	96	93
1	105	100	95	91	102	97	92	88	91	88	84	86	83	80	81	79	77	77	77	74
2	95	86	79	72	92	84	77	71	79	73	68	75	70	66	71	67	63	63	63	61
3	86	75	67	60	83	73	65	59	69	62	57	65	60	55	62	57	53	53	53	50
4	79	66	57	50	76	65	56	49	61	54	48	58	52	47	55	50	45	45	45	43
5	73	59	50	43	70	58	49	42	55	47	41	52	45	40	49	44	39	39	39	37
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	45	39	34	34	34	32
7	62	48	39	33	60	47	38	32	45	37	32	43	36	31	41	35	30	30	30	28
8	58	44	35	29	56	43	35	29	41	34	28	39	32	28	37	32	27	27	27	25
9	54	40	32	26	52	39	31	26	38	30	25	36	30	25	35	29	24	24	24	22
10	50	37	29	24	49	36	29	23	35	28	23	33	27	23	32	26	22	22	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	29294	29294	29294
5°	29012	28728	28624
10°	28827	28155	27900
15°	28484	27449	27286
20°	28031	26771	26594
25°	27506	25926	25806
30°	26953	25190	25141
35°	26271	24359	24400
40°	25642	23597	23620
45°	24966	22678	22836
50°	24195	21693	22023
55°	23361	20750	21290
60°	22280	19652	20548
65°	20912	18593	19931
70°	19170	17541	19449
75°	16652	16571	19118
80°	12877	15825	18976
85°	7491	15597	19259

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 24966 cd/sqm

TEST NUMBER: P1357055

CATALOG NUMBER: 3ASL4-30VHE-3-50-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.3	2.8
10°-20°	735.8	8.0
20°-30°	1112.5	12.1
30°-40°	1347.1	14.7
40°-50°	1414.8	15.4
50°-60°	1320.0	14.4
60°-70°	1090.9	11.9
70°-80°	785.5	8.5
80°-90°	488.1	5.3
90°-100°	286.0	3.1
100°-110°	163.6	1.8
110°-120°	92.4	1.0
120°-130°	53.2	0.6
130°-140°	28.6	0.3
140°-150°	12.1	0.1
150°-160°	2.2	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	2104.6	22.9
0°-40°	3451.7	37.6
0°-60°	6186.5	67.3
0°-90°	8550.9	93.1
90°-120°	542.0	5.9
90°-150°	635.8	6.9
90°-180°	638.0	6.9
0°-180°	9189.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2703	2703	2703	2703	2703	
5°	2674	2697	2697	2697	2703	254
15°	2562	2596	2607	2624	2635	722
25°	2337	2377	2416	2450	2472	1077
35°	2034	2090	2158	2219	2248	1273
45°	1686	1747	1843	1922	1955	1300
55°	1298	1371	1483	1590	1629	1160
65°	876	961	1107	1247	1298	867
75°	450	562	758	922	989	475
85°	84	253	478	646	708	103
90°	0	152	365	522	590	4
95°	0	96	275	421	483	0
105°	0	34	152	264	309	0
115°	0	17	90	163	191	0
125°	0	11	56	107	124	0
135°	0	0	34	67	84	0
145°	0	0	17	39	45	0
155°	0	0	0	11	17	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0

TEST NUMBER: P1357055

CATALOG NUMBER: 3ASL4-30VHE-3-50-UNV

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2702.6	2702.6	2702.6	2702.6	2702.6
2.5°	2691.4	2708.2	2708.2	2691.4	2691.4
5°	2674.5	2697.0	2697.0	2697.0	2702.6
7.5°	2657.7	2685.8	2685.8	2685.8	2697.0
10°	2635.2	2663.3	2668.9	2668.9	2674.5
12.5°	2601.5	2635.2	2640.8	2646.4	2652.0
15°	2562.1	2595.9	2607.1	2623.9	2635.2
17.5°	2517.2	2556.5	2579.0	2595.9	2607.1
20°	2461.0	2500.3	2528.4	2550.9	2567.8
22.5°	2404.8	2438.5	2472.2	2500.3	2517.2
25°	2337.4	2376.7	2416.1	2449.8	2472.2
27.5°	2264.3	2309.3	2359.9	2399.2	2421.7
30°	2196.9	2241.9	2298.1	2348.6	2371.1
32.5°	2118.3	2168.8	2230.6	2281.2	2309.3
35°	2034.0	2090.2	2157.6	2219.4	2247.5
37.5°	1949.7	2005.9	2090.2	2152.0	2180.1
40°	1865.4	1921.6	2011.5	2078.9	2107.0
42.5°	1775.5	1831.7	1927.2	2000.3	2034.0
45°	1685.6	1747.4	1842.9	1921.6	1955.3
47.5°	1595.7	1657.5	1758.7	1842.9	1876.7
50°	1494.6	1562.0	1663.1	1758.7	1792.4
52.5°	1399.1	1466.5	1578.9	1674.4	1708.1
55°	1297.9	1371.0	1483.3	1590.1	1629.4
57.5°	1196.8	1269.8	1387.8	1500.2	1545.2
60°	1090.0	1168.7	1292.3	1410.3	1460.9
62.5°	983.3	1067.6	1202.4	1326.0	1376.6
65°	876.5	960.8	1106.9	1247.4	1297.9
67.5°	769.8	859.7	1017.0	1163.1	1224.9
70°	663.0	758.5	927.1	1078.8	1140.6
72.5°	556.3	657.4	842.8	1000.1	1061.9
75°	449.5	561.9	758.5	921.5	988.9
77.5°	342.7	472.0	685.5	848.4	915.9
80°	247.2	393.3	606.8	775.4	842.8
82.5°	157.3	314.6	539.4	708.0	775.4
85°	84.3	252.8	477.6	646.2	708.0
87.5°	28.1	196.7	415.8	584.3	646.2
90°	0.0	151.7	365.2	522.5	590.0
92.5°	0.0	118.0	320.3	472.0	533.8
95°	0.0	95.5	275.3	421.4	483.2
97.5°	0.0	78.7	241.6	376.5	432.6
100°	0.0	61.8	207.9	337.1	387.7
102.5°	0.0	50.6	179.8	297.8	348.4
105°	0.0	33.7	151.7	264.1	309.0
107.5°	0.0	28.1	129.2	236.0	275.3
110°	0.0	22.5	118.0	202.3	241.6



TEST NUMBER: P1357055

CATALOG NUMBER: 3ASL4-30VHE-3-50-UNV

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	16.9	106.8	179.8	219.1
115°	0.0	16.9	89.9	162.9	191.0
117.5°	0.0	16.9	78.7	146.1	174.2
120°	0.0	11.2	73.0	129.2	157.3
122.5°	0.0	11.2	61.8	118.0	140.5
125°	0.0	11.2	56.2	106.8	123.6
127.5°	0.0	5.6	50.6	95.5	112.4
130°	0.0	5.6	44.9	84.3	101.1
132.5°	0.0	5.6	39.3	78.7	95.5
135°	0.0	0.0	33.7	67.4	84.3
137.5°	0.0	0.0	28.1	61.8	73.0
140°	0.0	0.0	22.5	50.6	67.4
142.5°	0.0	0.0	16.9	44.9	56.2
145°	0.0	0.0	16.9	39.3	44.9
147.5°	0.0	0.0	11.2	28.1	39.3
150°	0.0	0.0	5.6	22.5	28.1
152.5°	0.0	0.0	0.0	16.9	22.5
155°	0.0	0.0	0.0	11.2	16.9
157.5°	0.0	0.0	0.0	0.0	5.6
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

TEST NUMBER: P1357055

CATALOG NUMBER: 3ASL4-30VHE-3-50-UNV

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	21.06	22.60	21.53	23.05	23.53	23.06	24.60	23.52	25.05	25.53
	3H	22.55	23.96	23.04	24.42	24.95	25.51	26.91	25.99	27.38	27.90
	4H	23.04	24.37	23.54	24.85	25.39	26.69	28.02	27.19	28.51	29.04
	6H	23.31	24.55	23.83	25.05	25.60	27.93	29.17	28.44	29.66	30.22
	8H	23.36	24.55	23.89	25.07	25.63	28.56	29.75	29.09	30.27	30.83
	12H	23.38	24.52	23.91	25.03	25.62	29.25	30.39	29.78	30.90	31.49
4H	2H	21.93	23.26	22.43	23.74	24.28	23.49	24.82	23.99	25.31	25.84
	3H	23.66	24.80	24.18	25.32	25.88	26.17	27.30	26.68	27.83	28.39
	4H	24.27	25.31	24.80	25.84	26.44	27.53	28.56	28.06	29.10	29.69
	6H	24.67	25.58	25.22	26.15	26.75	28.95	29.87	29.51	30.43	31.04
	8H	24.76	25.62	25.32	26.19	26.80	29.69	30.56	30.25	31.12	31.74
	12H	24.81	25.59	25.39	26.18	26.80	30.51	31.29	31.09	31.88	32.50
8H	4H	24.94	25.81	25.50	26.37	26.99	27.74	28.61	28.30	29.17	29.79
	6H	25.52	26.25	26.11	26.86	27.48	29.34	30.07	29.93	30.68	31.30
	8H	25.70	26.36	26.31	26.98	27.62	30.22	30.88	30.83	31.50	32.13
	12H	25.82	26.41	26.43	27.01	27.72	31.22	31.81	31.83	32.41	33.12
12H	4H	25.13	25.92	25.72	26.51	27.13	27.75	28.54	28.33	29.13	29.75
	6H	25.81	26.47	26.42	27.09	27.72	29.38	30.04	29.98	30.65	31.29
	8H	26.09	26.68	26.70	27.28	27.99	30.33	30.92	30.93	31.52	32.23

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

Report Prepared for

Cooper Lighting Solutions

Fail-Safe

Report Number: SP1-2511-597-5

Test Date: 11/18/2025

Luminaire Tested: 4ASL-2-50-UNV-OPL-1_600mA

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

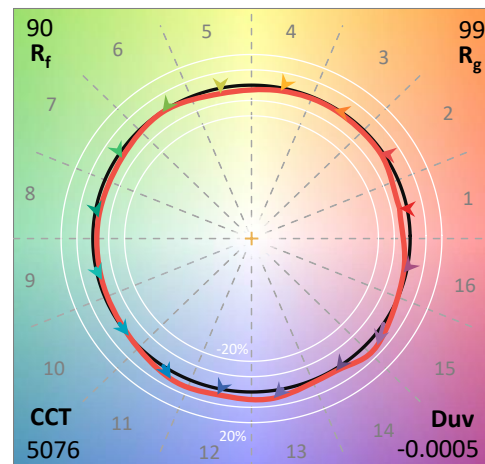
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2511-597-5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/18/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Fail-Safe
 Catalog Number: **4ASL-2-50-UNV-OPL-1_600mA**
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND 5000K LEDS with 1 rows at 600mA

Spectral Parameters

CCT (K): 5076
 CIE u' : 0.2110
 CIE v' : 0.4830
 Duv: -0.0005
 CIE x: 0.3429
 CIE y: 0.3489
 CIE z: 0.3082
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 572
 Purity: 7.553016
 R_f: 90.4
 R_g: 99

CRI (Ra): 94.9
 R1: 96.7
 R2: 98.2
 R3: 96.6
 R4: 95.6
 R5: 95.1
 R6: 93.6
 R7: 94.0
 R8: 89.6
 R9: 74.0
 R10: 93.9
 R11: 96.2
 R12: 72.4
 R13: 98.1
 R14: 97.8
 R15: 95.6



Test Conditions

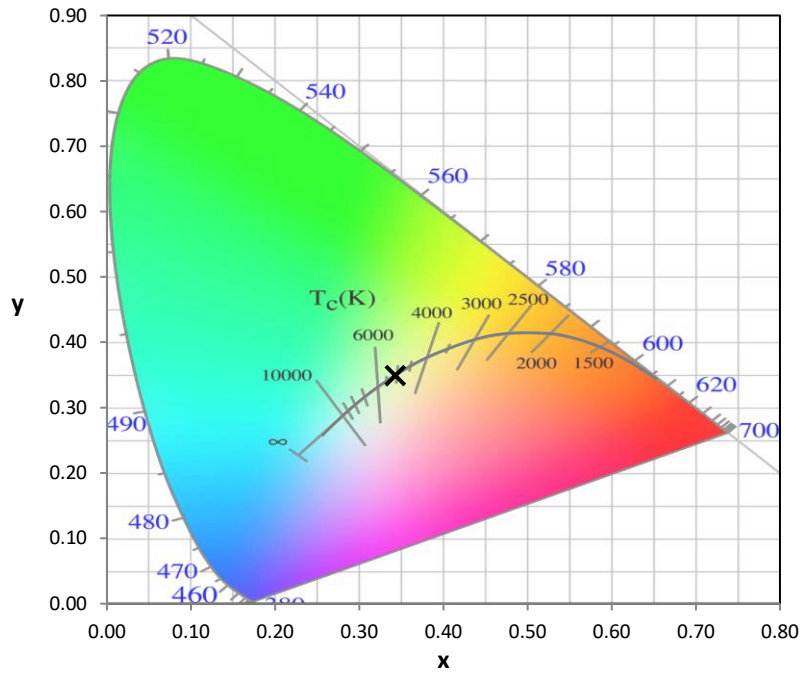
Stabilization Time: 24M
 Operation Time: 1H 24M
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2511-597-5

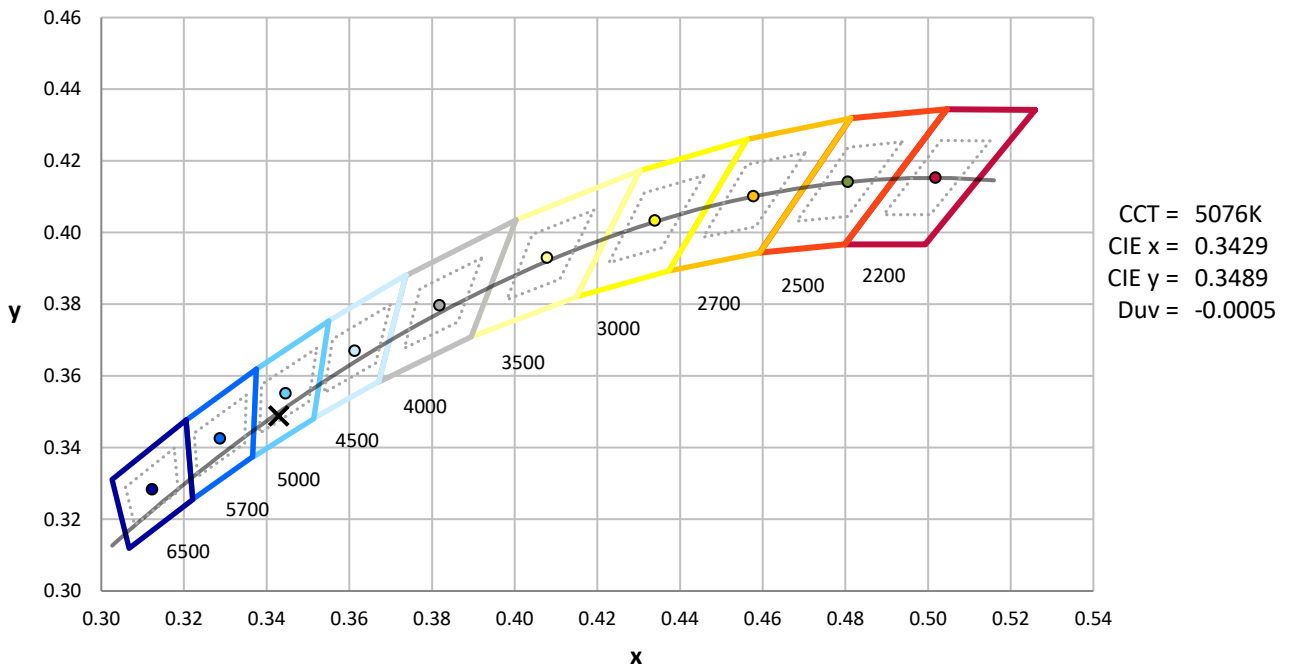
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	6/16/2025	12/16/2025
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208	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: SP1-2511-597-5

CIE 1931 Chromaticity Diagram



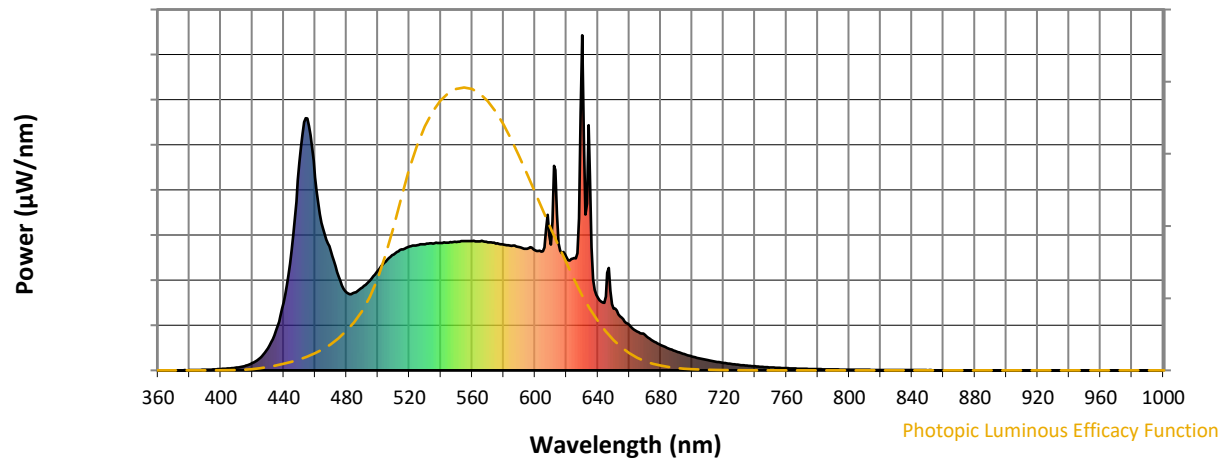
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2511-597-5

Photopic Flux vs. Wavelength

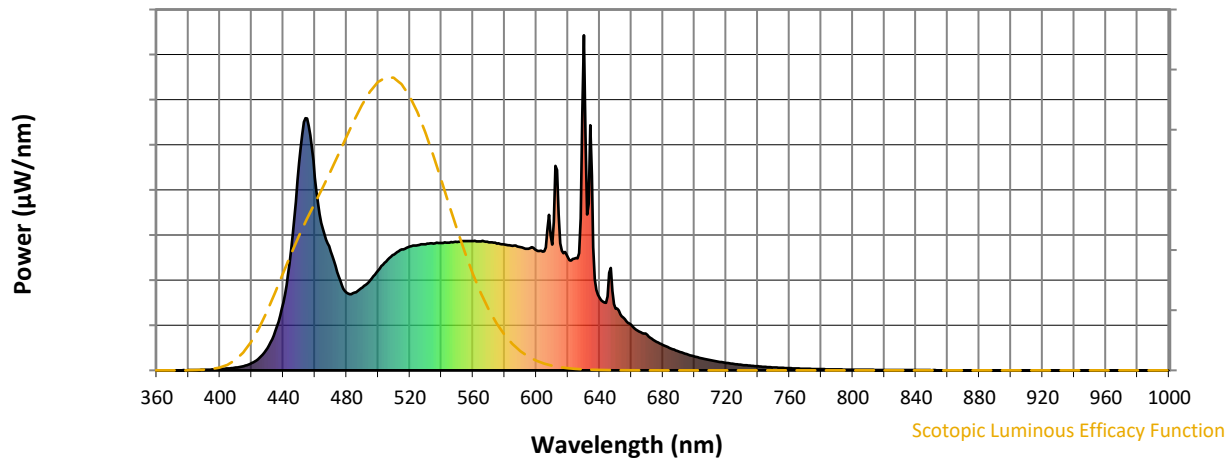


Photopic Lumens: NR

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	248	NR	620	337	NR	750	9	NR	880	0	NR
365	0	NR	495	269	NR	625	335	NR	755	8	NR	885	0	NR
370	0	NR	500	298	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	325	NR	635	580	NR	765	6	NR	895	0	NR
380	1	NR	510	346	NR	640	216	NR	770	5	NR	900	0	NR
385	1	NR	515	361	NR	645	221	NR	775	4	NR	905	0	NR
390	2	NR	520	369	NR	650	185	NR	780	4	NR	910	0	NR
395	3	NR	525	374	NR	655	158	NR	785	3	NR	915	0	NR
400	4	NR	530	376	NR	660	136	NR	790	3	NR	920	0	NR
405	6	NR	535	379	NR	665	116	NR	795	2	NR	925	0	NR
410	8	NR	540	381	NR	670	106	NR	800	2	NR	930	0	NR
415	13	NR	545	381	NR	675	88	NR	805	2	NR	935	0	NR
420	22	NR	550	383	NR	680	76	NR	810	2	NR	940	0	NR
425	37	NR	555	386	NR	685	65	NR	815	1	NR	945	0	NR
430	66	NR	560	386	NR	690	56	NR	820	1	NR	950	0	NR
435	119	NR	565	385	NR	695	48	NR	825	1	NR	955	0	NR
440	203	NR	570	382	NR	700	41	NR	830	1	NR	960	0	NR
445	359	NR	575	379	NR	705	35	NR	835	1	NR	965	0	NR
450	620	NR	580	376	NR	710	30	NR	840	1	NR	970	0	NR
455	752	NR	585	372	NR	715	26	NR	845	1	NR	975	0	NR
460	576	NR	590	368	NR	720	22	NR	850	1	NR	980	0	NR
465	423	NR	595	363	NR	725	19	NR	855	0	NR	985	0	NR
470	354	NR	600	358	NR	730	16	NR	860	0	NR	990	0	NR
475	280	NR	605	355	NR	735	14	NR	865	0	NR	995	0	NR
480	232	NR	610	375	NR	740	12	NR	870	0	NR	1000	0	NR
485	232	NR	615	379	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-5

Scotopic Flux vs. Wavelength



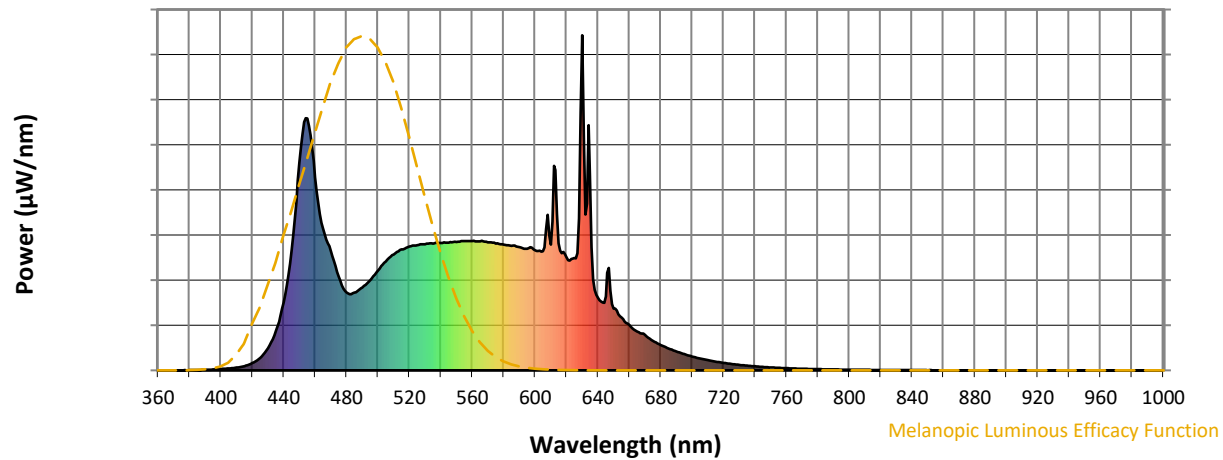
Scotopic Lumens: NR

S/P: 2.12

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	248	NR	620	337	NR	750	9	NR	880	0	NR
365	0	NR	495	269	NR	625	335	NR	755	8	NR	885	0	NR
370	0	NR	500	298	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	325	NR	635	580	NR	765	6	NR	895	0	NR
380	1	NR	510	346	NR	640	216	NR	770	5	NR	900	0	NR
385	1	NR	515	361	NR	645	221	NR	775	4	NR	905	0	NR
390	2	NR	520	369	NR	650	185	NR	780	4	NR	910	0	NR
395	3	NR	525	374	NR	655	158	NR	785	3	NR	915	0	NR
400	4	NR	530	376	NR	660	136	NR	790	3	NR	920	0	NR
405	6	NR	535	379	NR	665	116	NR	795	2	NR	925	0	NR
410	8	NR	540	381	NR	670	106	NR	800	2	NR	930	0	NR
415	13	NR	545	381	NR	675	88	NR	805	2	NR	935	0	NR
420	22	NR	550	383	NR	680	76	NR	810	2	NR	940	0	NR
425	37	NR	555	386	NR	685	65	NR	815	1	NR	945	0	NR
430	66	NR	560	386	NR	690	56	NR	820	1	NR	950	0	NR
435	119	NR	565	385	NR	695	48	NR	825	1	NR	955	0	NR
440	203	NR	570	382	NR	700	41	NR	830	1	NR	960	0	NR
445	359	NR	575	379	NR	705	35	NR	835	1	NR	965	0	NR
450	620	NR	580	376	NR	710	30	NR	840	1	NR	970	0	NR
455	752	NR	585	372	NR	715	26	NR	845	1	NR	975	0	NR
460	576	NR	590	368	NR	720	22	NR	850	1	NR	980	0	NR
465	423	NR	595	363	NR	725	19	NR	855	0	NR	985	0	NR
470	354	NR	600	358	NR	730	16	NR	860	0	NR	990	0	NR
475	280	NR	605	355	NR	735	14	NR	865	0	NR	995	0	NR
480	232	NR	610	375	NR	740	12	NR	870	0	NR	1000	0	NR
485	232	NR	615	379	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.65

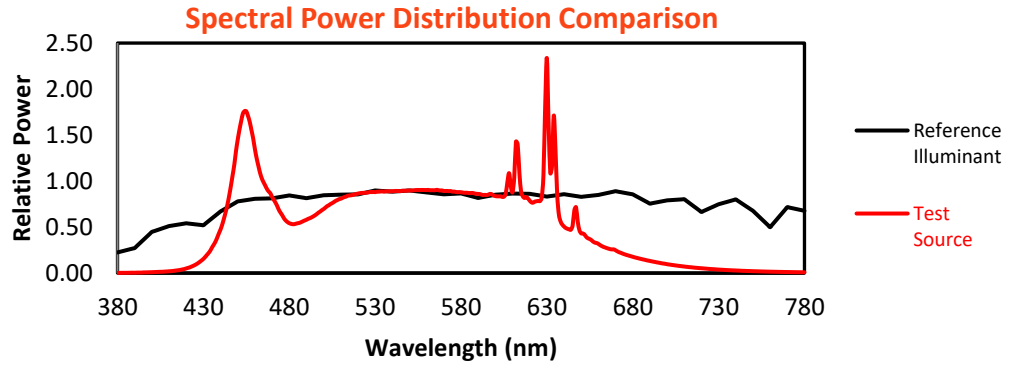
λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	248	NR	620	337	NR	750	9	NR	880	0	NR
365	0	NR	495	269	NR	625	335	NR	755	8	NR	885	0	NR
370	0	NR	500	298	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	325	NR	635	580	NR	765	6	NR	895	0	NR
380	1	NR	510	346	NR	640	216	NR	770	5	NR	900	0	NR
385	1	NR	515	361	NR	645	221	NR	775	4	NR	905	0	NR
390	2	NR	520	369	NR	650	185	NR	780	4	NR	910	0	NR
395	3	NR	525	374	NR	655	158	NR	785	3	NR	915	0	NR
400	4	NR	530	376	NR	660	136	NR	790	3	NR	920	0	NR
405	6	NR	535	379	NR	665	116	NR	795	2	NR	925	0	NR
410	8	NR	540	381	NR	670	106	NR	800	2	NR	930	0	NR
415	13	NR	545	381	NR	675	88	NR	805	2	NR	935	0	NR
420	22	NR	550	383	NR	680	76	NR	810	2	NR	940	0	NR
425	37	NR	555	386	NR	685	65	NR	815	1	NR	945	0	NR
430	66	NR	560	386	NR	690	56	NR	820	1	NR	950	0	NR
435	119	NR	565	385	NR	695	48	NR	825	1	NR	955	0	NR
440	203	NR	570	382	NR	700	41	NR	830	1	NR	960	0	NR
445	359	NR	575	379	NR	705	35	NR	835	1	NR	965	0	NR
450	620	NR	580	376	NR	710	30	NR	840	1	NR	970	0	NR
455	752	NR	585	372	NR	715	26	NR	845	1	NR	975	0	NR
460	576	NR	590	368	NR	720	22	NR	850	1	NR	980	0	NR
465	423	NR	595	363	NR	725	19	NR	855	0	NR	985	0	NR
470	354	NR	600	358	NR	730	16	NR	860	0	NR	990	0	NR
475	280	NR	605	355	NR	735	14	NR	865	0	NR	995	0	NR
480	232	NR	610	375	NR	740	12	NR	870	0	NR	1000	0	NR
485	232	NR	615	379	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-5

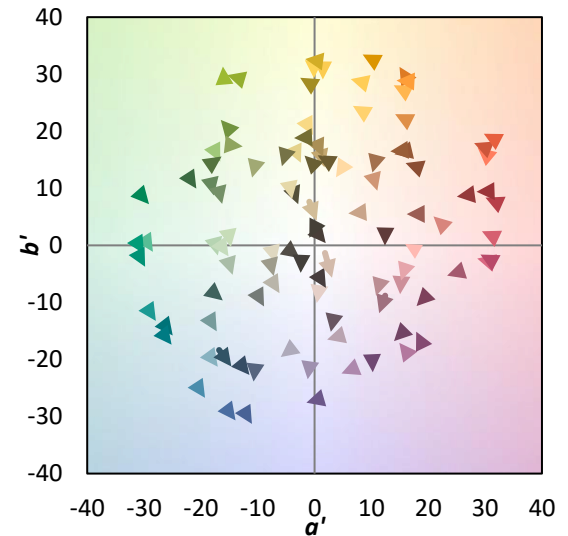
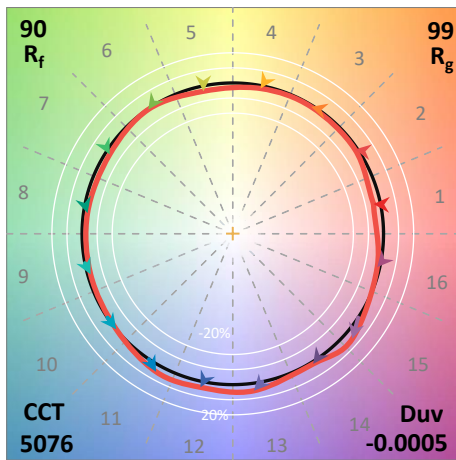
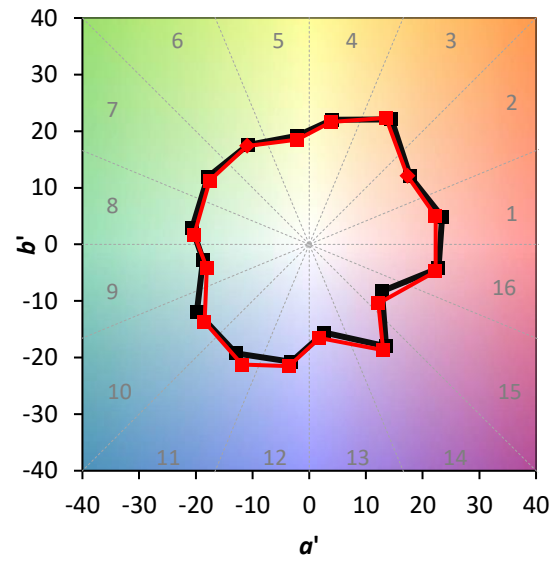
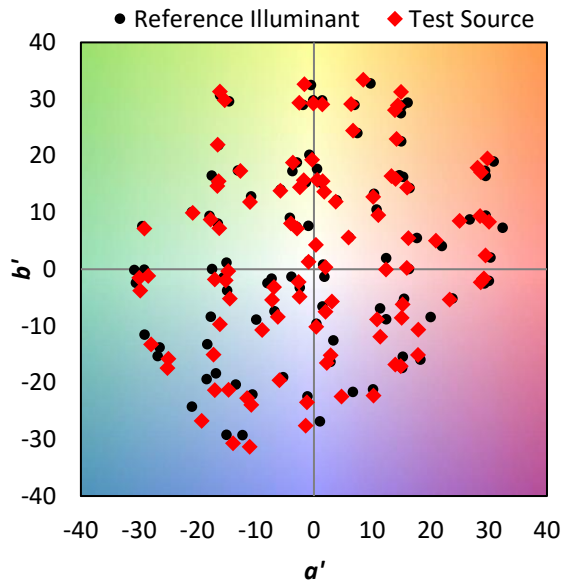
TM-30-18

Summary

$R_f = 90.4$
 $R_g = 99$
 $\text{CIE } R_a = 94.9$
 $R_9 = 74.0$

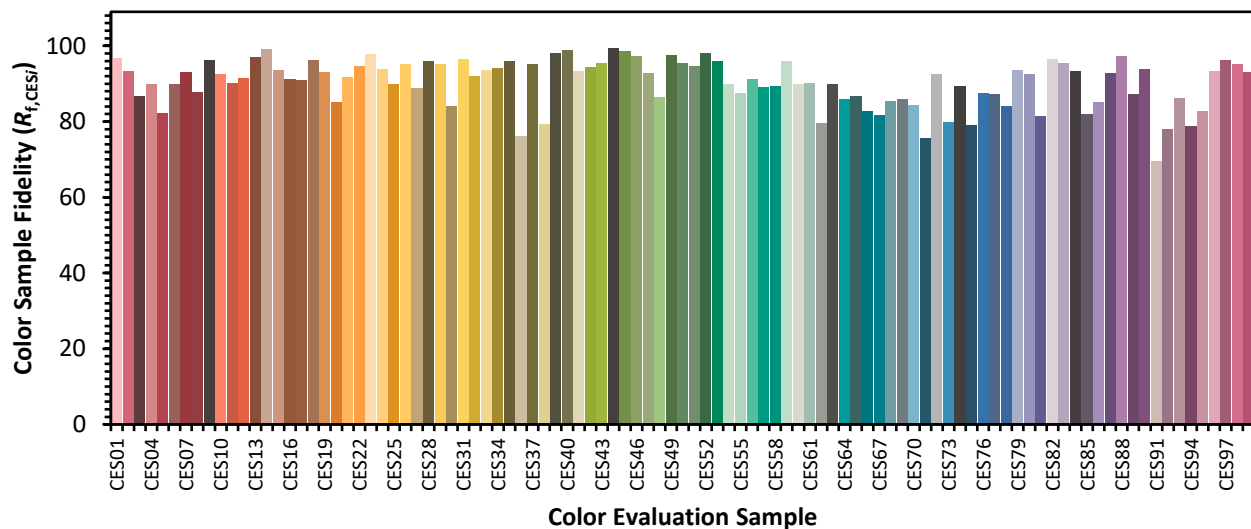


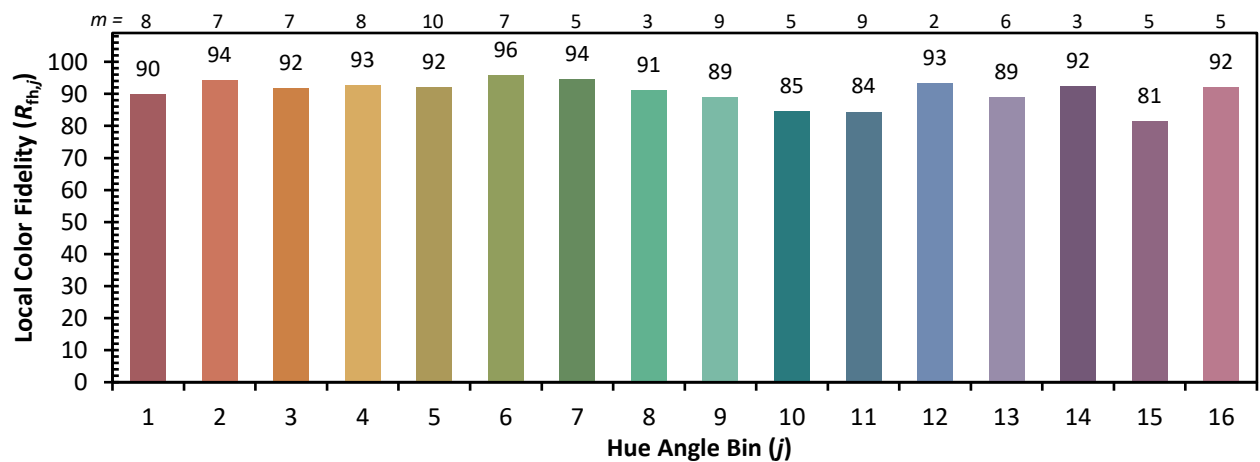
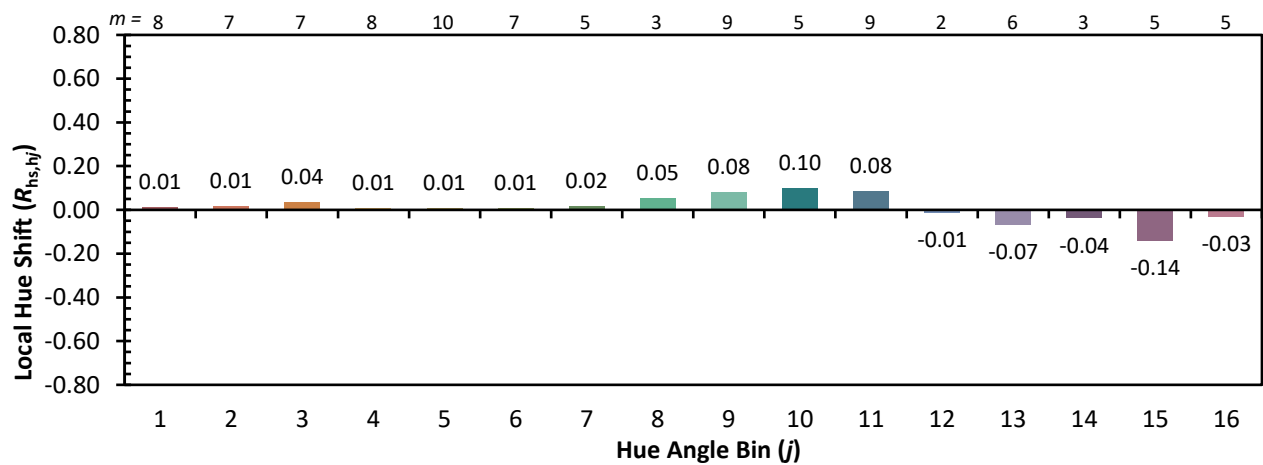
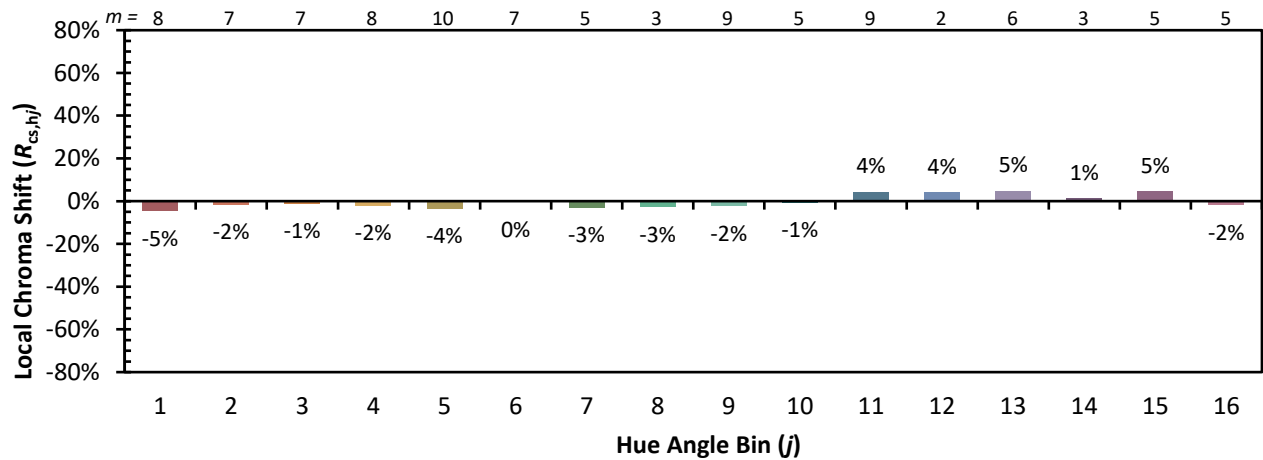
Color Vector Graphics



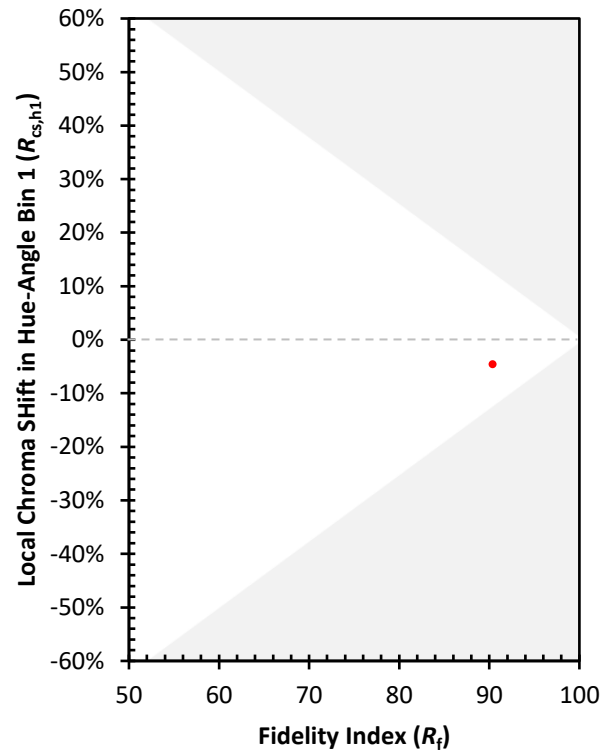
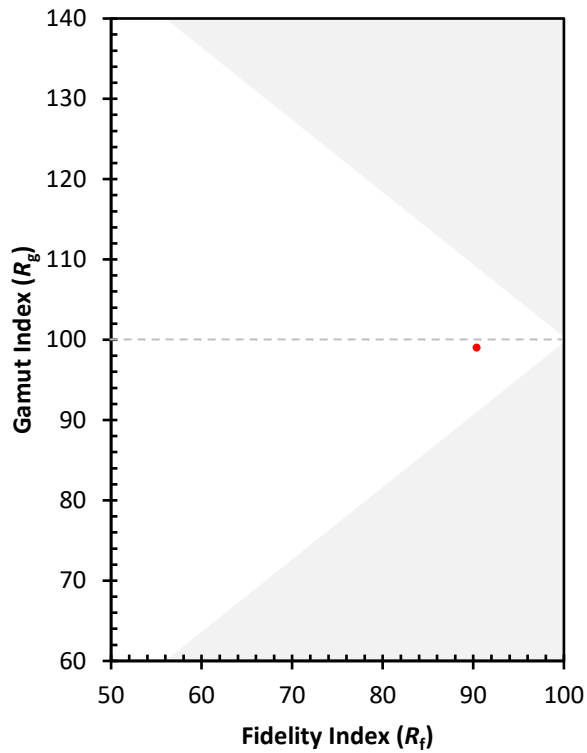
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 95	CES51 = 95	CES76 = 87
CES02 = 61	CES27 = 89	CES52 = 98	CES77 = 87
CES03 = 31	CES28 = 96	CES53 = 96	CES78 = 84
CES04 = 69	CES29 = 95	CES54 = 90	CES79 = 94
CES05 = 48	CES30 = 84	CES55 = 88	CES80 = 93
CES06 = 50	CES31 = 96	CES56 = 91	CES81 = 81
CES07 = 41	CES32 = 92	CES57 = 89	CES82 = 97
CES08 = 40	CES33 = 94	CES58 = 89	CES83 = 95
CES09 = 29	CES34 = 94	CES59 = 96	CES84 = 93
CES10 = 73	CES35 = 96	CES60 = 90	CES85 = 82
CES11 = 56	CES36 = 76	CES61 = 90	CES86 = 85
CES12 = 62	CES37 = 95	CES62 = 80	CES87 = 93
CES13 = 42	CES38 = 79	CES63 = 90	CES88 = 97
CES14 = 74	CES39 = 98	CES64 = 86	CES89 = 87
CES15 = 71	CES40 = 99	CES65 = 87	CES90 = 94
CES16 = 47	CES41 = 93	CES66 = 83	CES91 = 70
CES17 = 48	CES42 = 94	CES67 = 82	CES92 = 78
CES18 = 56	CES43 = 95	CES68 = 85	CES93 = 86
CES19 = 70	CES44 = 99	CES69 = 86	CES94 = 79
CES20 = 65	CES45 = 99	CES70 = 84	CES95 = 83
CES21 = 85	CES46 = 97	CES71 = 76	CES96 = 93
CES22 = 77	CES47 = 93	CES72 = 92	CES97 = 96
CES23 = 91	CES48 = 86	CES73 = 80	CES98 = 95
CES24 = 90	CES49 = 98	CES74 = 89	CES99 = 93
CES25 = 70	CES50 = 96	CES75 = 79	



Color Rendition by Hue-Angle Bin


Measure Comparisons



(END OF REPORT)