

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: P1356869

Luminaire Tested: 2ASL4-20HE-2-50-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1356869
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2511-597-7)
Test Lab: INNOVATION CENTER
Issue Date: 2/17/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: 2ASL4-20HE-2-50-UNV
Description: 2FT 2000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND 5000K LEDS 2 ROW
Light Source: -
Ballast/Driver: -

Summary

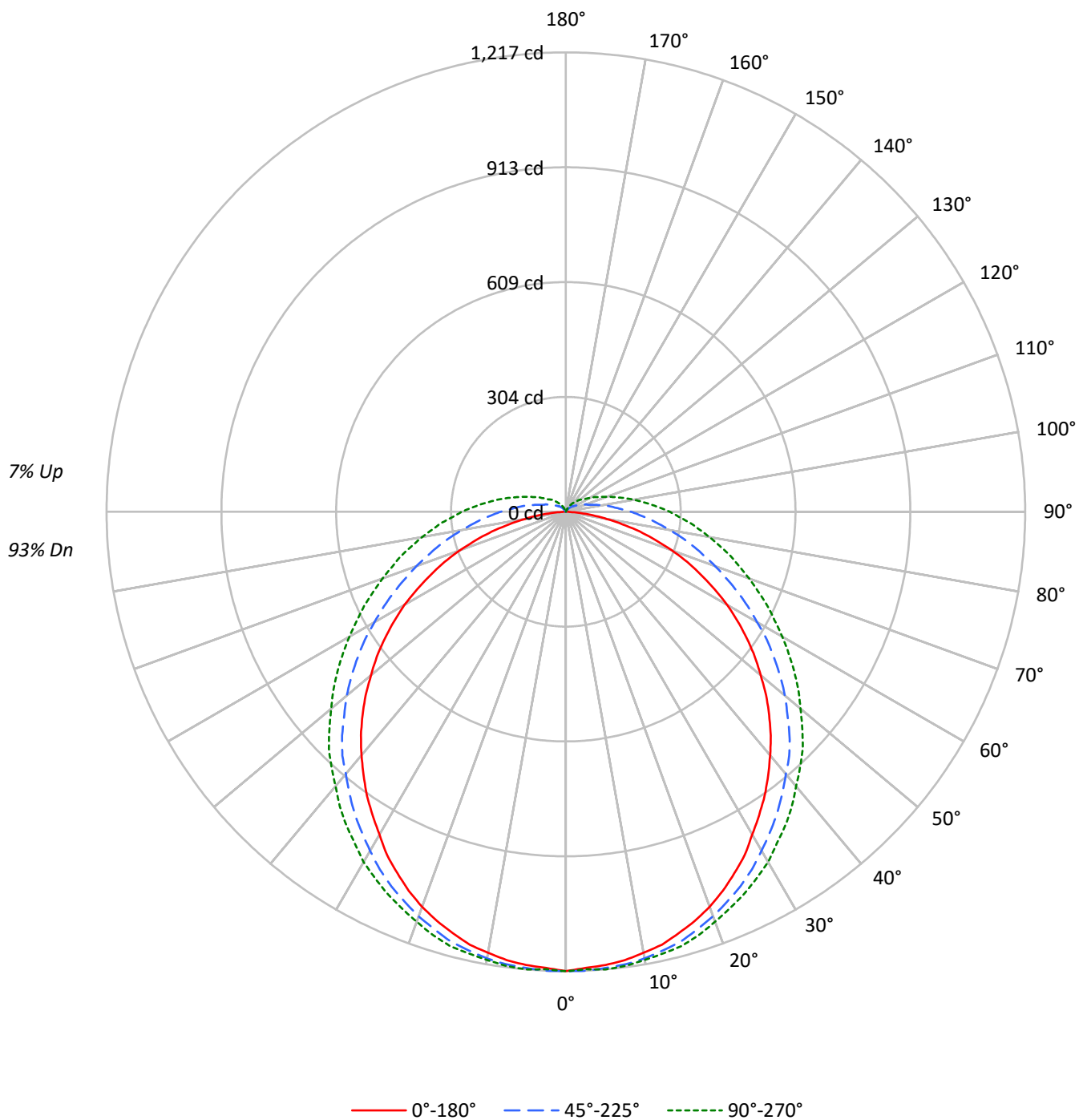
Lumens per Lamp: N/A
Luminaire Lumens: 4178.0 lumens
Efficiency: N/A
Efficacy: 116.7 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.4
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 1.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 35.8
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: P1356869

CATALOG NUMBER: 2ASL4-20HE-2-50-UNV

Luminous Intensity Polar Plot



TEST NUMBER: P1356869

CATALOG NUMBER: 2ASL4-20HE-2-50-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	95	95	95	95	95	93
1	105	100	95	90	102	97	92	88	91	87	84	86	83	80	81	79	77	77	77	74
2	95	86	79	72	92	84	77	71	79	73	68	74	70	65	70	66	63	63	63	60
3	86	75	66	59	83	73	65	58	69	62	56	65	59	55	62	57	53	53	53	50
4	79	66	57	50	76	64	56	49	61	54	48	58	51	46	55	49	45	45	45	42
5	72	59	50	43	70	57	49	42	54	47	41	52	45	40	49	43	39	39	39	36
6	67	53	44	37	64	52	43	37	49	41	36	47	40	35	44	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	34	29	41	33	28	39	32	28	37	31	27	27	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	29	24	24	24	22
10	50	37	29	24	49	36	28	23	35	28	23	33	27	22	32	26	22	22	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	19857	19857	19857
5°	19654	19431	19402
10°	19475	19042	18929
15°	19252	18622	18551
20°	18974	18102	18019
25°	18561	17587	17559
30°	18054	17004	17103
35°	17645	16462	16574
40°	17175	15878	16015
45°	16695	15370	15610
50°	16089	14709	15005
55°	15491	13999	14527
60°	14764	13202	14018
65°	13675	12457	13624
70°	12441	11749	13262
75°	10686	11182	13142
80°	8032	10653	13099
85°	4477	10518	13475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 16695 cd/sqm

TEST NUMBER: P1356869

CATALOG NUMBER: 2ASL4-20HE-2-50-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	115.4	2.8
10°-20°	331.8	7.9
20°-30°	502.7	12.0
30°-40°	608.0	14.6
40°-50°	641.0	15.3
50°-60°	598.3	14.3
60°-70°	493.9	11.8
70°-80°	358.3	8.6
80°-90°	226.4	5.4
90°-100°	135.1	3.2
100°-110°	77.5	1.9
110°-120°	44.0	1.1
120°-130°	25.1	0.6
130°-140°	13.6	0.3
140°-150°	6.0	0.1
150°-160°	1.1	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	949.9	22.7
0°-40°	1557.9	37.3
0°-60°	2797.1	66.9
0°-90°	3875.7	92.8
90°-120°	256.6	6.1
90°-150°	301.2	7.2
90°-180°	302.0	7.2
0°-180°	4178.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1217	1217	1217	1217	1217	
5°	1206	1217	1213	1213	1217	114
15°	1156	1171	1179	1183	1190	326
25°	1056	1072	1094	1110	1118	487
35°	918	942	976	1003	1014	574
45°	762	792	838	873	888	587
55°	586	620	674	720	739	523
65°	394	436	501	563	589	391
75°	203	256	348	421	452	213
85°	38	119	222	298	329	47
90°	0	73	172	245	276	2
95°	0	46	130	199	226	0
105°	0	15	73	126	145	0
115°	0	8	42	76	92	0
125°	0	4	27	50	57	0
135°	0	0	15	31	38	0
145°	0	0	8	19	23	0
155°	0	0	0	4	8	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0

TEST NUMBER: P1356869

CATALOG NUMBER: 2ASL4-20HE-2-50-UNV

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1217.0	1217.0	1217.0	1217.0	1217.0
2.5°	1209.4	1220.8	1217.0	1213.2	1213.2
5°	1205.5	1217.0	1213.2	1213.2	1217.0
7.5°	1197.9	1209.4	1209.4	1209.4	1213.2
10°	1186.4	1201.7	1201.7	1201.7	1205.5
12.5°	1174.9	1186.4	1190.2	1194.0	1197.9
15°	1155.8	1171.1	1178.7	1182.6	1190.2
17.5°	1136.6	1148.1	1159.6	1171.1	1174.9
20°	1113.7	1129.0	1140.5	1151.9	1155.8
22.5°	1086.9	1102.2	1117.5	1129.0	1136.6
25°	1056.3	1071.6	1094.5	1109.9	1117.5
27.5°	1025.7	1041.0	1067.8	1086.9	1094.5
30°	987.4	1010.3	1037.1	1060.1	1071.6
32.5°	952.9	975.9	1006.5	1033.3	1041.0
35°	918.5	941.5	975.9	1002.7	1014.2
37.5°	880.2	907.0	941.5	972.1	983.6
40°	842.0	868.7	907.0	941.5	949.1
42.5°	803.7	830.5	876.4	907.0	918.5
45°	761.6	792.2	838.1	872.6	887.9
47.5°	719.5	750.1	796.0	834.3	849.6
50°	673.6	708.0	757.8	796.0	811.3
52.5°	631.5	665.9	715.7	757.8	776.9
55°	585.5	620.0	673.6	719.5	738.6
57.5°	539.6	574.1	631.5	681.2	700.4
60°	493.7	528.1	585.5	642.9	662.1
62.5°	443.9	482.2	543.4	600.8	623.8
65°	394.2	436.3	501.3	562.6	589.4
67.5°	348.3	390.4	459.2	528.1	551.1
70°	298.5	344.4	421.0	489.9	516.7
72.5°	248.8	298.5	382.7	455.4	482.2
75°	202.8	256.4	348.3	421.0	451.6
77.5°	153.1	218.1	313.8	390.4	417.2
80°	111.0	179.9	279.4	359.7	386.5
82.5°	72.7	145.4	248.8	329.1	355.9
85°	38.3	118.6	222.0	298.5	329.1
87.5°	11.5	91.8	195.2	271.7	298.5
90°	0.0	72.7	172.2	244.9	275.5
92.5°	0.0	57.4	149.3	222.0	248.8
95°	0.0	45.9	130.1	199.0	225.8
97.5°	0.0	38.3	114.8	179.9	202.8
100°	0.0	30.6	99.5	160.7	183.7
102.5°	0.0	23.0	84.2	141.6	164.6
105°	0.0	15.3	72.7	126.3	145.4
107.5°	0.0	11.5	61.2	111.0	130.1
110°	0.0	11.5	57.4	95.7	114.8



TEST NUMBER: P1356869

CATALOG NUMBER: 2ASL4-20HE-2-50-UNV

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	7.7	49.8	88.0	103.3
115°	0.0	7.7	42.1	76.5	91.8
117.5°	0.0	7.7	38.3	68.9	84.2
120°	0.0	7.7	34.4	61.2	72.7
122.5°	0.0	3.8	30.6	53.6	65.1
125°	0.0	3.8	26.8	49.8	57.4
127.5°	0.0	3.8	23.0	45.9	53.6
130°	0.0	3.8	23.0	42.1	49.8
132.5°	0.0	0.0	19.1	38.3	45.9
135°	0.0	0.0	15.3	30.6	38.3
137.5°	0.0	0.0	15.3	26.8	34.4
140°	0.0	0.0	11.5	26.8	30.6
142.5°	0.0	0.0	7.7	23.0	26.8
145°	0.0	0.0	7.7	19.1	23.0
147.5°	0.0	0.0	3.8	15.3	19.1
150°	0.0	0.0	3.8	11.5	15.3
152.5°	0.0	0.0	0.0	7.7	11.5
155°	0.0	0.0	0.0	3.8	7.7
157.5°	0.0	0.0	0.0	0.0	3.8
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

TEST NUMBER: P1356869

CATALOG NUMBER: 2ASL4-20HE-2-50-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	19.66	21.20	20.14	21.66	22.15	21.64	23.18	22.11	23.64	24.13
	3H	21.17	22.57	21.65	23.04	23.57	24.06	25.46	24.54	25.93	26.46
	4H	21.65	22.98	22.16	23.47	24.01	25.24	26.56	25.74	27.05	27.59
	6H	21.93	23.16	22.45	23.66	24.22	26.46	27.69	26.98	28.19	28.75
	8H	21.98	23.17	22.51	23.69	24.26	27.08	28.26	27.61	28.79	29.35
	12H	22.00	23.13	22.53	23.65	24.25	27.75	28.88	28.28	29.40	30.00
4H	2H	20.53	21.86	21.03	22.34	22.89	22.08	23.40	22.58	23.89	24.44
	3H	22.27	23.40	22.79	23.93	24.50	24.72	25.85	25.24	26.38	26.95
	4H	22.88	23.92	23.42	24.46	25.06	26.08	27.11	26.61	27.65	28.25
	6H	23.28	24.20	23.84	24.77	25.38	27.50	28.41	28.05	28.98	29.59
	8H	23.38	24.24	23.95	24.81	25.44	28.22	29.09	28.79	29.65	30.28
	12H	23.43	24.21	24.02	24.81	25.44	29.02	29.80	29.60	30.40	31.03
8H	4H	23.56	24.42	24.12	24.99	25.61	26.30	27.16	26.86	27.73	28.35
	6H	24.14	24.87	24.74	25.48	26.11	27.90	28.63	28.49	29.24	29.87
	8H	24.33	24.99	24.94	25.61	26.25	28.77	29.43	29.38	30.05	30.69
	12H	24.45	25.04	25.06	25.65	26.36	29.75	30.34	30.36	30.95	31.66
12H	4H	23.75	24.53	24.33	25.13	25.76	26.31	27.09	26.90	27.69	28.32
	6H	24.44	25.10	25.04	25.72	26.36	27.94	28.60	28.54	29.22	29.86
	8H	24.72	25.31	25.33	25.92	26.63	28.88	29.47	29.49	30.08	30.79

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

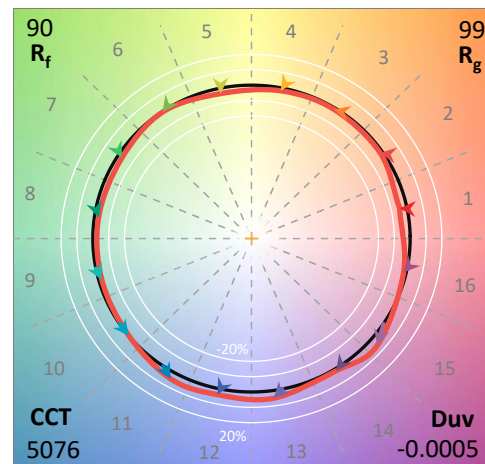
Test Information

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

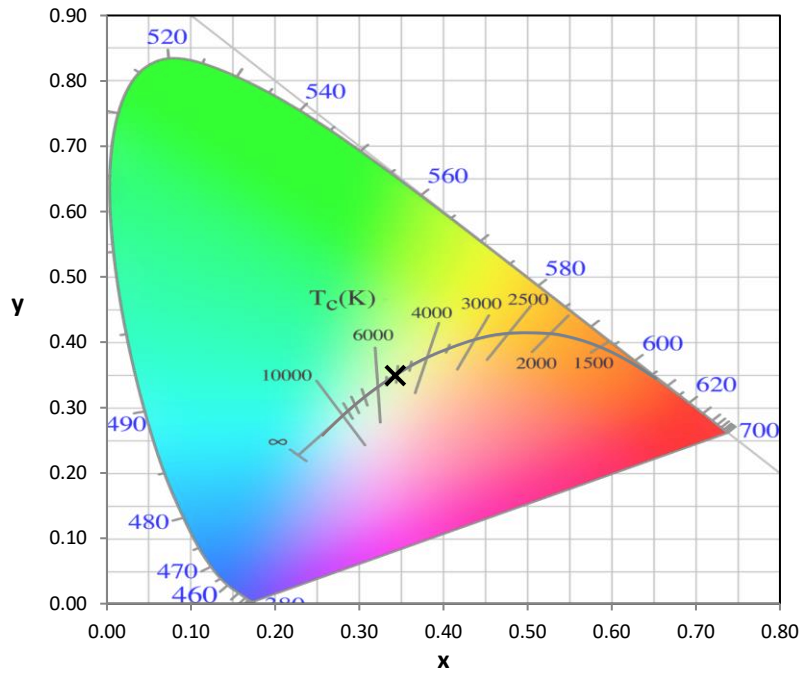
Stabilization Time: 24M
 Operation Time: 1H 24M
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2511-597-5

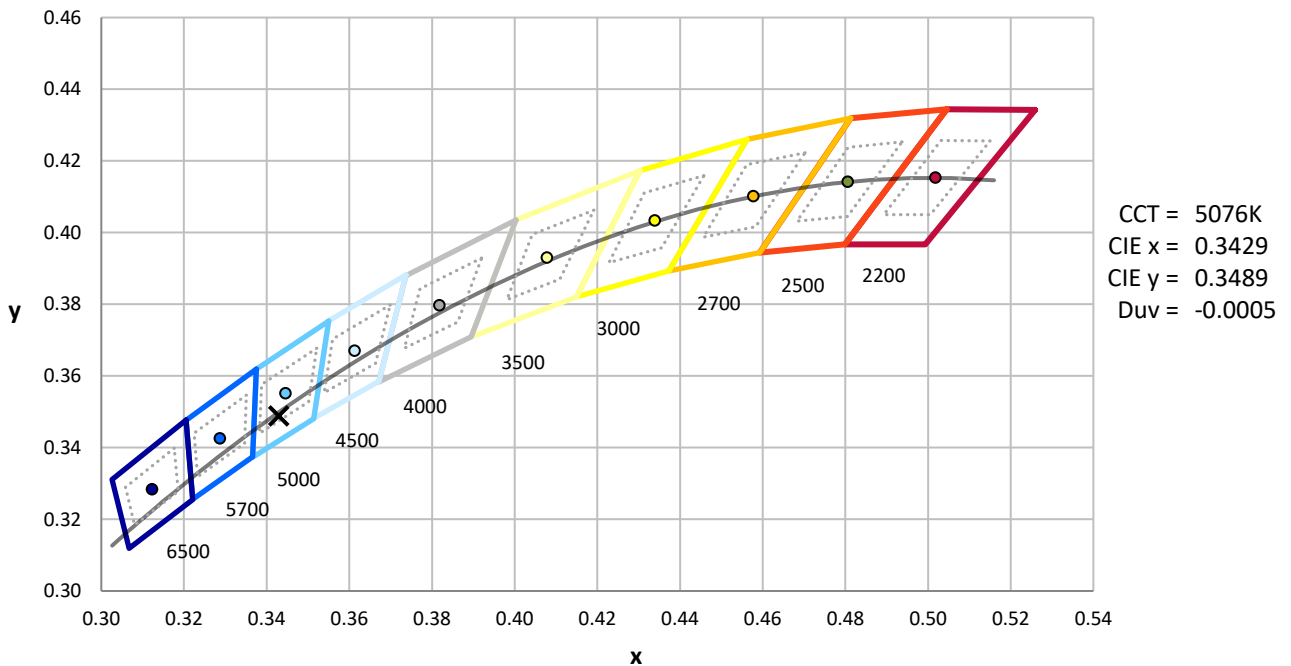
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	6/16/2025	12/16/2025
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208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



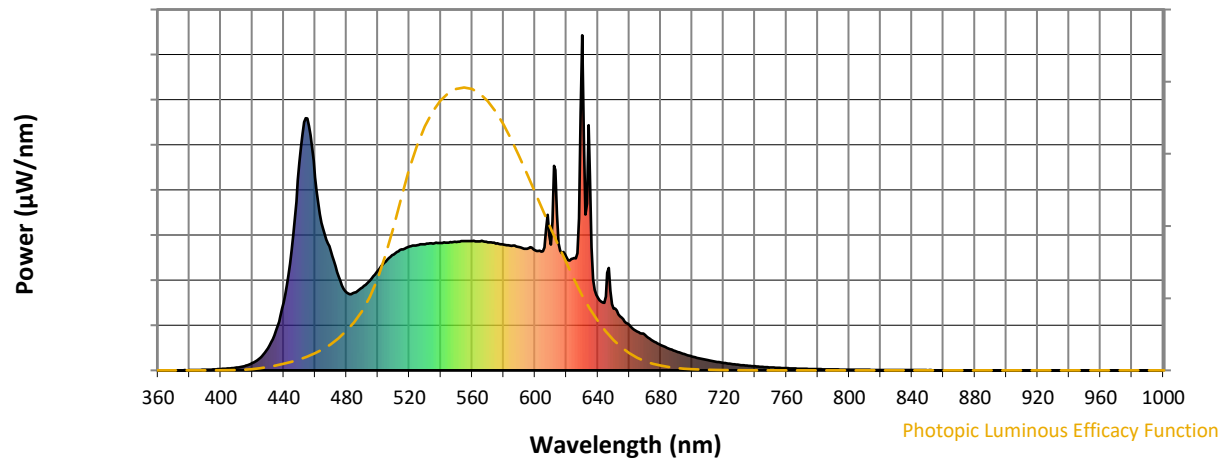
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2511-597-5

Photopic Flux vs. Wavelength

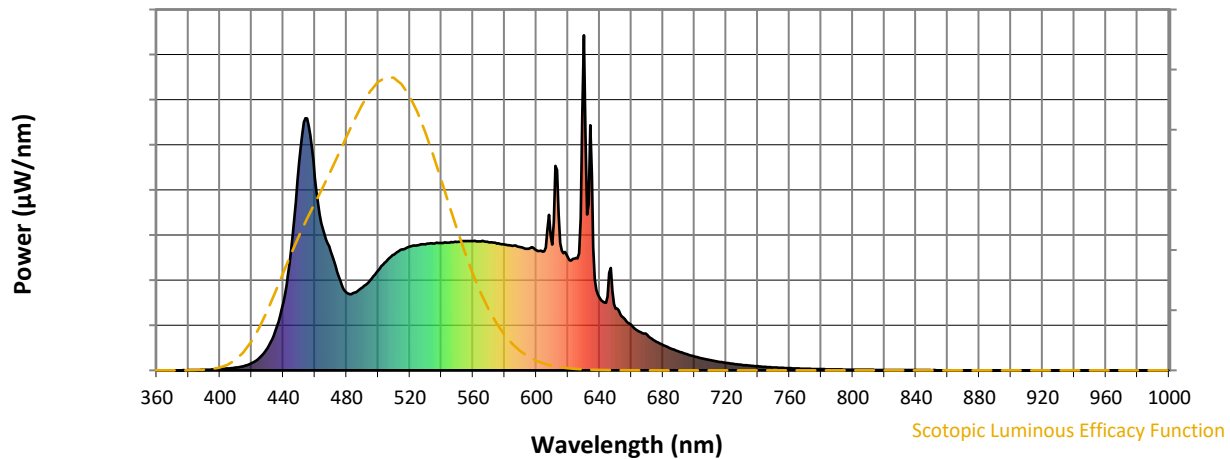


Photopic Lumens: NR

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



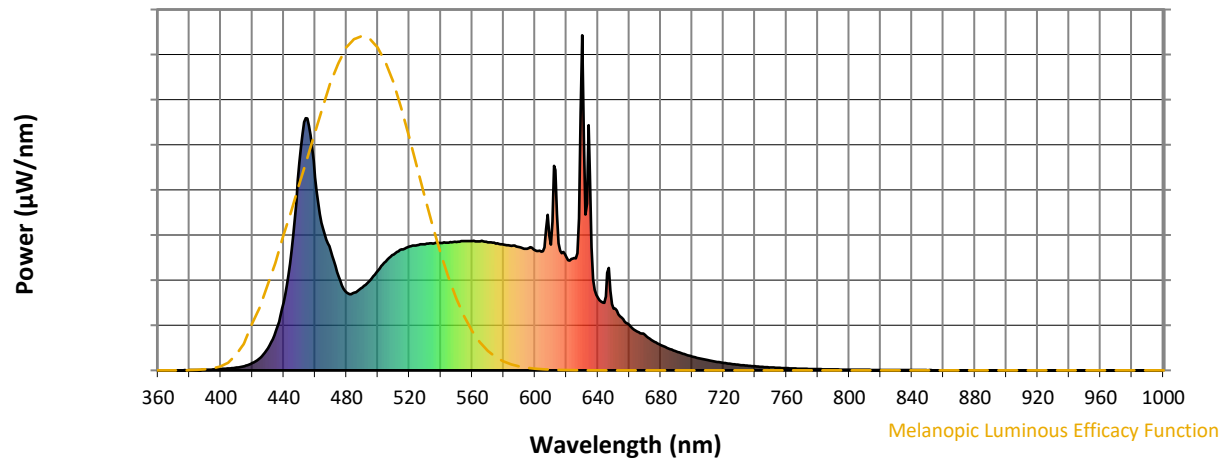
Scotopic Lumens: NR

S/P: 2.12

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	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

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.65

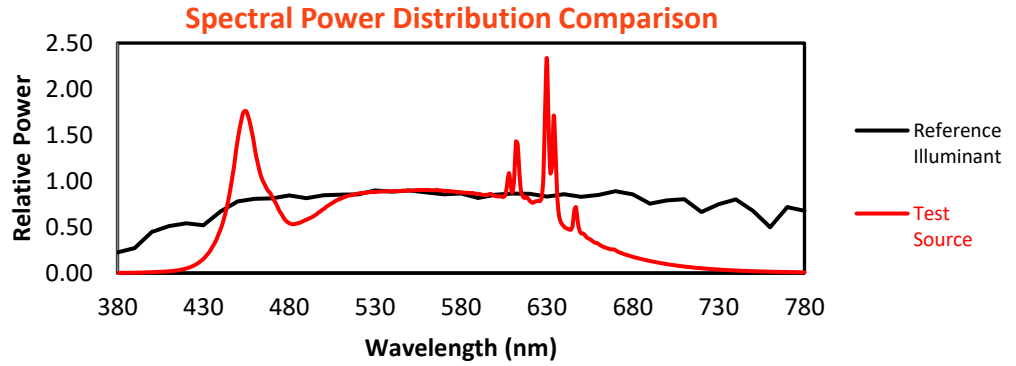
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	248	NR	620	337	NR	750	9	NR	880	0	NR
365	0	NR	495	269	NR	625	335	NR	755	8	NR	885	0	NR
370	0	NR	500	298	NR	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

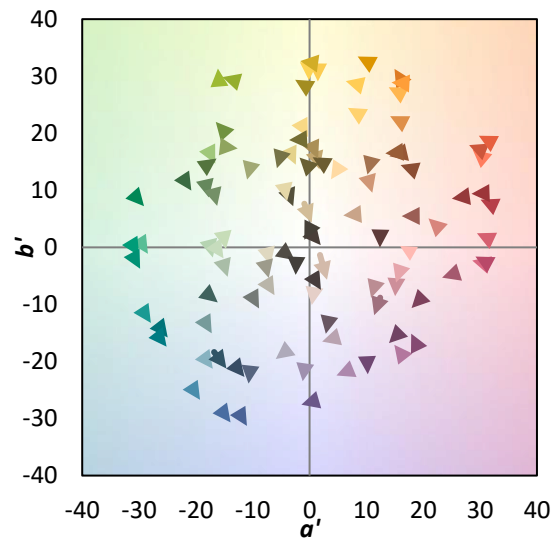
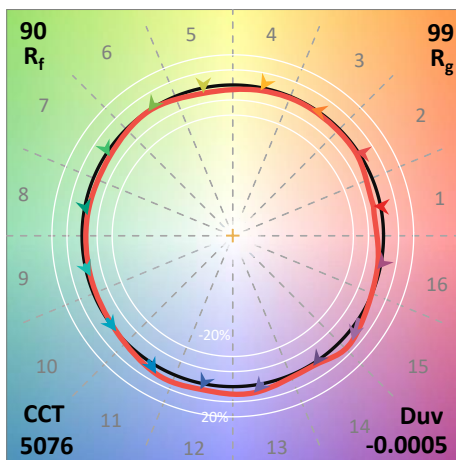
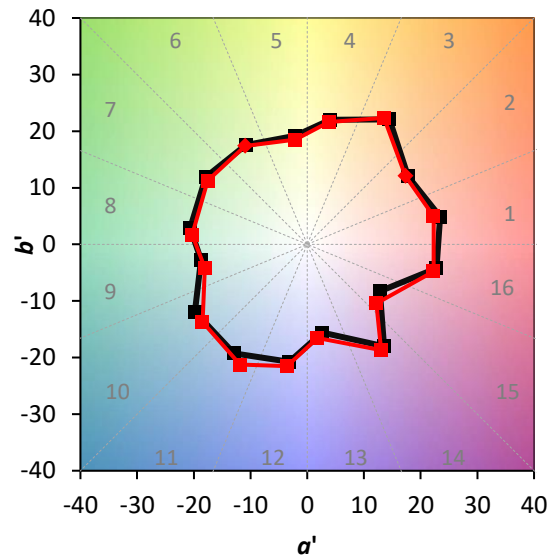
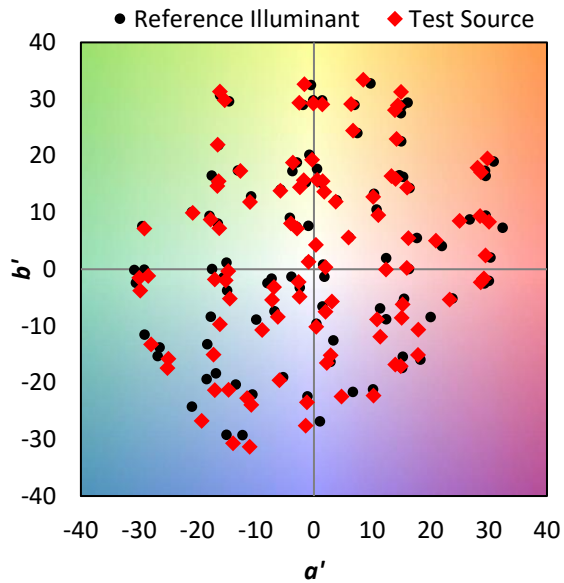
TM-30-18

Summary

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

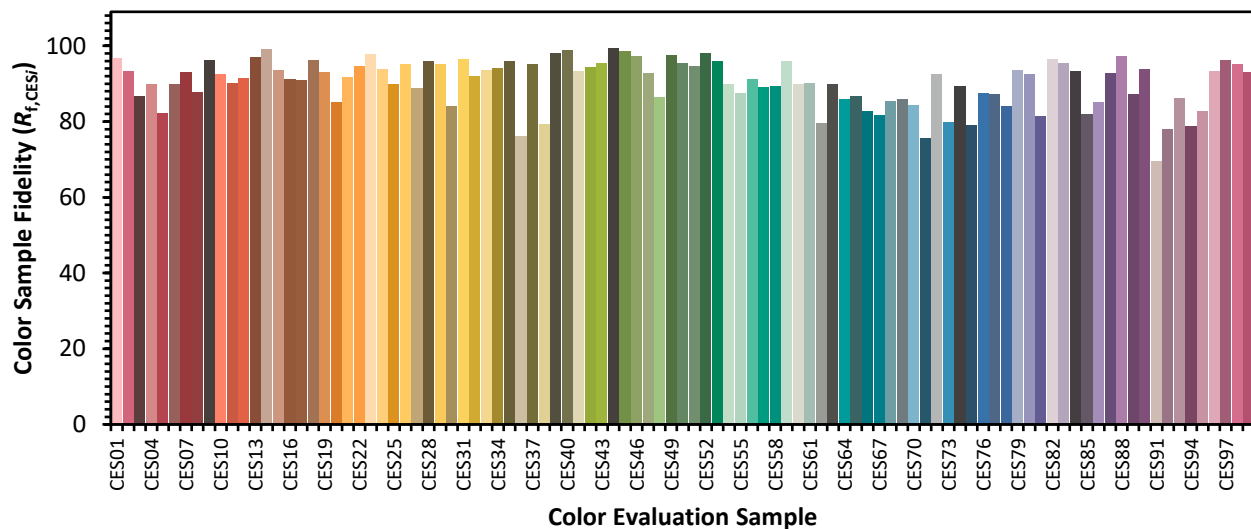


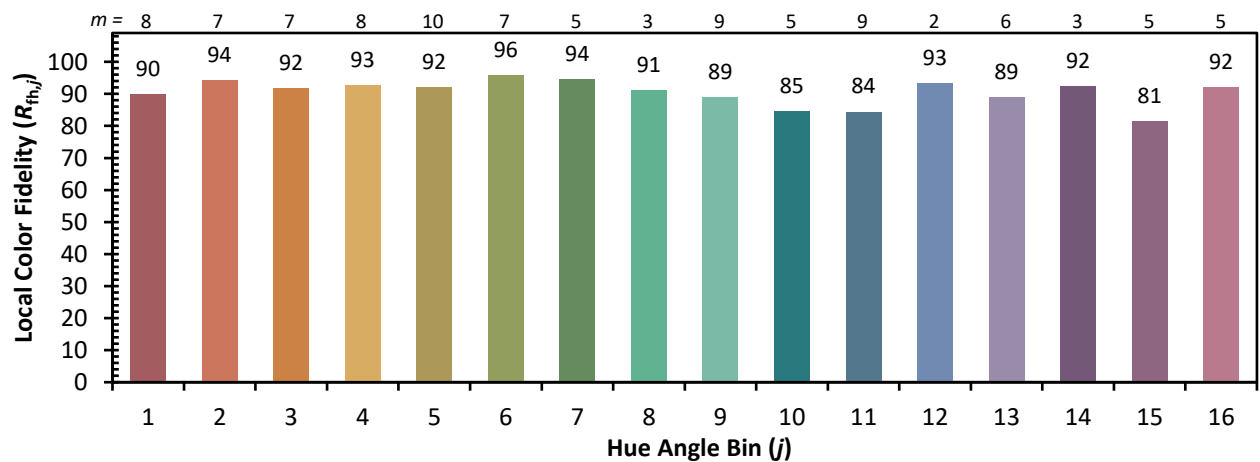
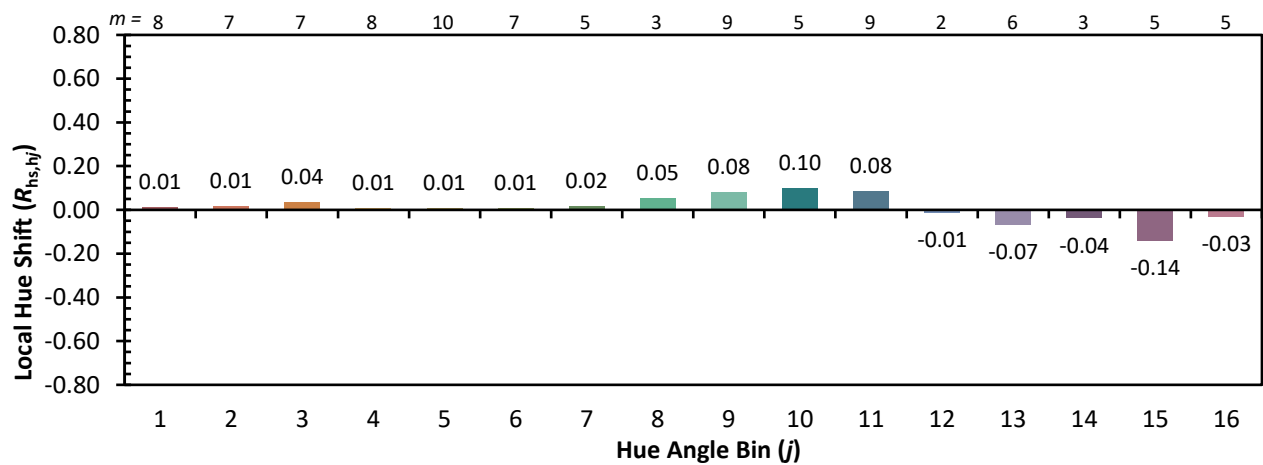
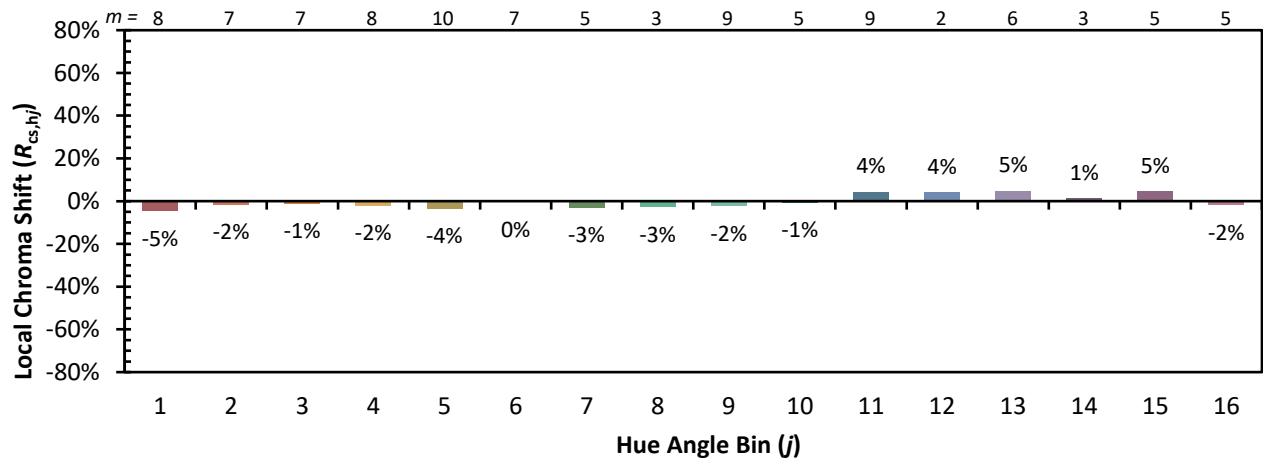
Color Vector Graphics



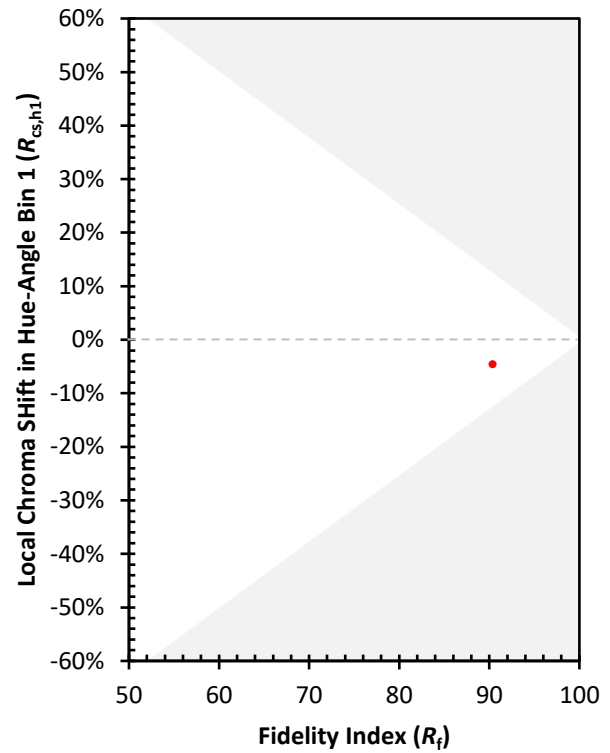
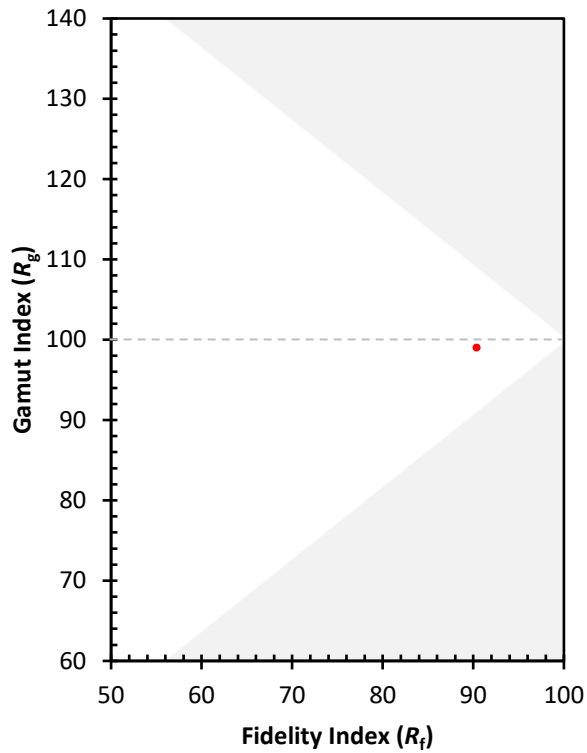
Individual Sample Fidelity Index ($R_{f,i}$)

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)