

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: P1356847

Luminaire Tested: 2ASL4-15HE-2-A59-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1356847
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: 2ASL4-15HE-2-A59-UNV
Description: 2FT 1500 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND A59 LEDS 2 ROW
Light Source: -
Ballast/Driver: -

Summary

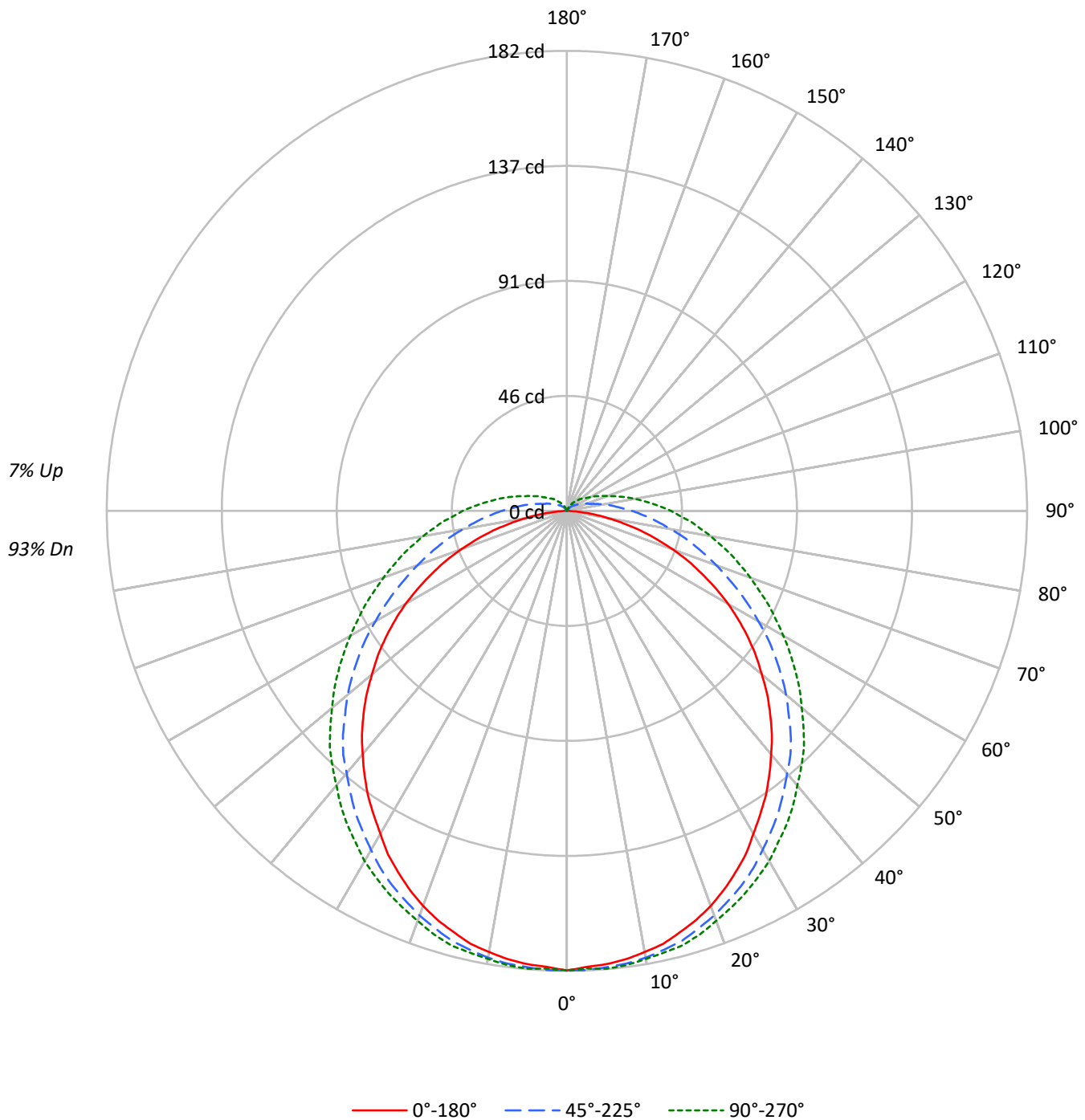
Lumens per Lamp: N/A
Luminaire Lumens: 624.0 lumens
Efficiency: N/A
Efficacy: 34.7 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.4
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 1.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 18
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: P1356847

CATALOG NUMBER: 2ASL4-15HE-2-A59-UNV

Luminous Intensity Polar Plot



TEST NUMBER: P1356847

CATALOG NUMBER: 2ASL4-15HE-2-A59-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°	2966	2966	2966
5°	2935	2902	2898
10°	2909	2844	2826
15°	2875	2781	2771
20°	2833	2703	2691
25°	2773	2627	2622
30°	2697	2540	2554
35°	2636	2459	2476
40°	2564	2372	2393
45°	2492	2296	2331
50°	2403	2197	2242
55°	2315	2091	2169
60°	2204	1973	2094
65°	2043	1861	2034
70°	1859	1755	1981
75°	1597	1669	1961
80°	1201	1590	1956
85°	666	1573	2015

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2492 cd/sqm

TEST NUMBER: P1356847

CATALOG NUMBER: 2ASL4-15HE-2-A59-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.2	2.8
10°-20°	49.5	7.9
20°-30°	75.1	12.0
30°-40°	90.8	14.6
40°-50°	95.7	15.3
50°-60°	89.4	14.3
60°-70°	73.8	11.8
70°-80°	53.5	8.6
80°-90°	33.8	5.4
90°-100°	20.2	3.2
100°-110°	11.6	1.9
110°-120°	6.6	1.0
120°-130°	3.7	0.6
130°-140°	2.0	0.3
140°-150°	0.9	0.1
150°-160°	0.2	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	141.9	22.7
0°-40°	232.7	37.3
0°-60°	417.8	66.9
0°-90°	578.9	92.8
90°-120°	38.3	6.1
90°-150°	45.0	7.2
90°-180°	45.0	7.2
0°-180°	624.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	182	182	182	182	182	
5°	180	182	181	181	182	17
15°	173	175	176	177	178	49
25°	158	160	164	166	167	73
35°	137	141	146	150	152	86
45°	114	118	125	130	133	88
55°	88	93	101	108	110	78
65°	59	65	75	84	88	58
75°	30	38	52	63	67	32
85°	6	18	33	45	49	7
90°	0	11	26	37	41	0
95°	0	7	19	30	34	0
105°	0	2	11	19	22	0
115°	0	1	6	11	14	0
125°	0	1	4	7	9	0
135°	0	0	2	5	6	0
145°	0	0	1	3	3	0
155°	0	0	0	1	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: P1356847

CATALOG NUMBER: 2ASL4-15HE-2-A59-UNV

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	181.8	181.8	181.8	181.8	181.8
2.5°	180.6	182.3	181.8	181.2	181.2
5°	180.0	181.8	181.2	181.2	181.8
7.5°	178.9	180.6	180.6	180.6	181.2
10°	177.2	179.5	179.5	179.5	180.0
12.5°	175.5	177.2	177.8	178.3	178.9
15°	172.6	174.9	176.0	176.6	177.8
17.5°	169.8	171.5	173.2	174.9	175.5
20°	166.3	168.6	170.3	172.0	172.6
22.5°	162.3	164.6	166.9	168.6	169.8
25°	157.8	160.0	163.5	165.8	166.9
27.5°	153.2	155.5	159.5	162.3	163.5
30°	147.5	150.9	154.9	158.3	160.0
32.5°	142.3	145.8	150.3	154.3	155.5
35°	137.2	140.6	145.8	149.8	151.5
37.5°	131.5	135.5	140.6	145.2	146.9
40°	125.7	129.8	135.5	140.6	141.8
42.5°	120.0	124.0	130.9	135.5	137.2
45°	113.7	118.3	125.2	130.3	132.6
47.5°	107.5	112.0	118.9	124.6	126.9
50°	100.6	105.7	113.2	118.9	121.2
52.5°	94.3	99.5	106.9	113.2	116.0
55°	87.5	92.6	100.6	107.5	110.3
57.5°	80.6	85.7	94.3	101.7	104.6
60°	73.7	78.9	87.5	96.0	98.9
62.5°	66.3	72.0	81.2	89.7	93.2
65°	58.9	65.2	74.9	84.0	88.0
67.5°	52.0	58.3	68.6	78.9	82.3
70°	44.6	51.4	62.9	73.2	77.2
72.5°	37.2	44.6	57.2	68.0	72.0
75°	30.3	38.3	52.0	62.9	67.4
77.5°	22.9	32.6	46.9	58.3	62.3
80°	16.6	26.9	41.7	53.7	57.7
82.5°	10.9	21.7	37.2	49.2	53.2
85°	5.7	17.7	33.2	44.6	49.2
87.5°	1.7	13.7	29.2	40.6	44.6
90°	0.0	10.9	25.7	36.6	41.2
92.5°	0.0	8.6	22.3	33.2	37.2
95°	0.0	6.9	19.4	29.7	33.7
97.5°	0.0	5.7	17.1	26.9	30.3
100°	0.0	4.6	14.9	24.0	27.4
102.5°	0.0	3.4	12.6	21.1	24.6
105°	0.0	2.3	10.9	18.9	21.7
107.5°	0.0	1.7	9.1	16.6	19.4
110°	0.0	1.7	8.6	14.3	17.1

TEST NUMBER: P1356847

CATALOG NUMBER: 2ASL4-15HE-2-A59-UNV

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	1.1	7.4	13.1	15.4
115°	0.0	1.1	6.3	11.4	13.7
117.5°	0.0	1.1	5.7	10.3	12.6
120°	0.0	1.1	5.1	9.1	10.9
122.5°	0.0	0.6	4.6	8.0	9.7
125°	0.0	0.6	4.0	7.4	8.6
127.5°	0.0	0.6	3.4	6.9	8.0
130°	0.0	0.6	3.4	6.3	7.4
132.5°	0.0	0.0	2.9	5.7	6.9
135°	0.0	0.0	2.3	4.6	5.7
137.5°	0.0	0.0	2.3	4.0	5.1
140°	0.0	0.0	1.7	4.0	4.6
142.5°	0.0	0.0	1.1	3.4	4.0
145°	0.0	0.0	1.1	2.9	3.4
147.5°	0.0	0.0	0.6	2.3	2.9
150°	0.0	0.0	0.6	1.7	2.3
152.5°	0.0	0.0	0.0	1.1	1.7
155°	0.0	0.0	0.0	0.6	1.1
157.5°	0.0	0.0	0.0	0.0	0.6
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: P1356847

CATALOG NUMBER: 2ASL4-15HE-2-A59-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	13.06	14.59	13.53	15.05	15.54	15.03	16.57	15.51	17.03	17.52
	3H	14.56	15.96	15.05	16.43	16.96	17.45	18.85	17.93	19.32	19.85
	4H	15.04	16.37	15.55	16.86	17.40	18.63	19.96	19.13	20.44	20.99
	6H	15.32	16.56	15.84	17.06	17.62	19.85	21.09	20.37	21.59	22.15
	8H	15.37	16.56	15.91	17.08	17.65	20.47	21.66	21.00	22.18	22.75
	12H	15.39	16.53	15.93	17.04	17.64	21.14	22.28	21.68	22.80	23.39
4H	2H	13.92	15.25	14.43	15.74	16.28	15.47	16.80	15.97	17.28	17.83
	3H	15.66	16.80	16.18	17.33	17.89	18.12	19.25	18.63	19.78	20.35
	4H	16.27	17.31	16.81	17.85	18.45	19.47	20.51	20.01	21.05	21.65
	6H	16.68	17.59	17.24	18.16	18.77	20.89	21.81	21.45	22.37	22.98
	8H	16.78	17.64	17.34	18.20	18.83	21.62	22.48	22.18	23.05	23.67
	12H	16.82	17.61	17.41	18.20	18.83	22.41	23.20	23.00	23.79	24.42
8H	4H	16.95	17.81	17.52	18.38	19.00	19.69	20.56	20.26	21.12	21.75
	6H	17.54	18.27	18.13	18.88	19.51	21.29	22.02	21.89	22.63	23.26
	8H	17.73	18.39	18.33	19.01	19.65	22.16	22.82	22.77	23.44	24.09
	12H	17.85	18.44	18.46	19.04	19.75	23.14	23.73	23.75	24.34	25.05
12H	4H	17.14	17.92	17.73	18.52	19.15	19.70	20.49	20.29	21.08	21.71
	6H	17.83	18.49	18.44	19.11	19.75	21.33	21.99	21.94	22.61	23.25
	8H	18.12	18.71	18.73	19.31	20.02	22.27	22.86	22.88	23.47	24.18

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

Report Prepared for

Cooper Lighting Solutions

Fail-Safe

Report Number: SP1-2511-597-9

Test Date: 01/22/2026

Luminaire Tested: 4ASL-2-A590-UNV-OPL-1_600mA

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

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2511-597-9
 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-A590-UNV-OPL-1_600mA**
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND AMBER 590 LEDS with 1 rows at 600mA

Spectral Parameters

CCT (K):	1535	CRI (Ra):	-20.0		
CIE u':	0.3534	R1:	-32.1	R9:	-380.5
CIE v':	0.5468	R2:	53.1	R10:	29.9
Duv:	0.0117	R3:	18.5	R11:	-92.0
CIE x:	0.5921	R4:	-65.7	R12:	-8.5
CIE y:	0.4072	R5:	-38.6	R13:	-13.5
CIE z:	0.0007	R6:	42.8	R14:	47.1
Peak Wavelength (nm):	598	R7:	-6.2	R15:	-65.4
Dominant Wavelength (nm):	592	R8:	-132.3		
Purity:	99.97894				
Rf:	1.3				
Rg:	0.1				



Test Conditions

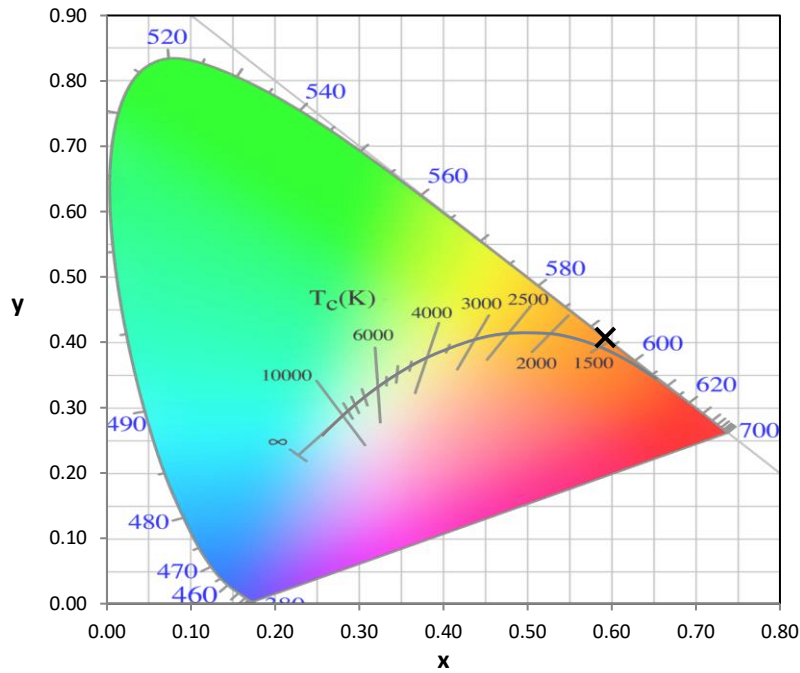
Stabilization Time: 77M
 Operation Time: 2H 17M
 Sphere Temperature (°C): 25.1

REPORT NUMBER: SP1-2511-597-9

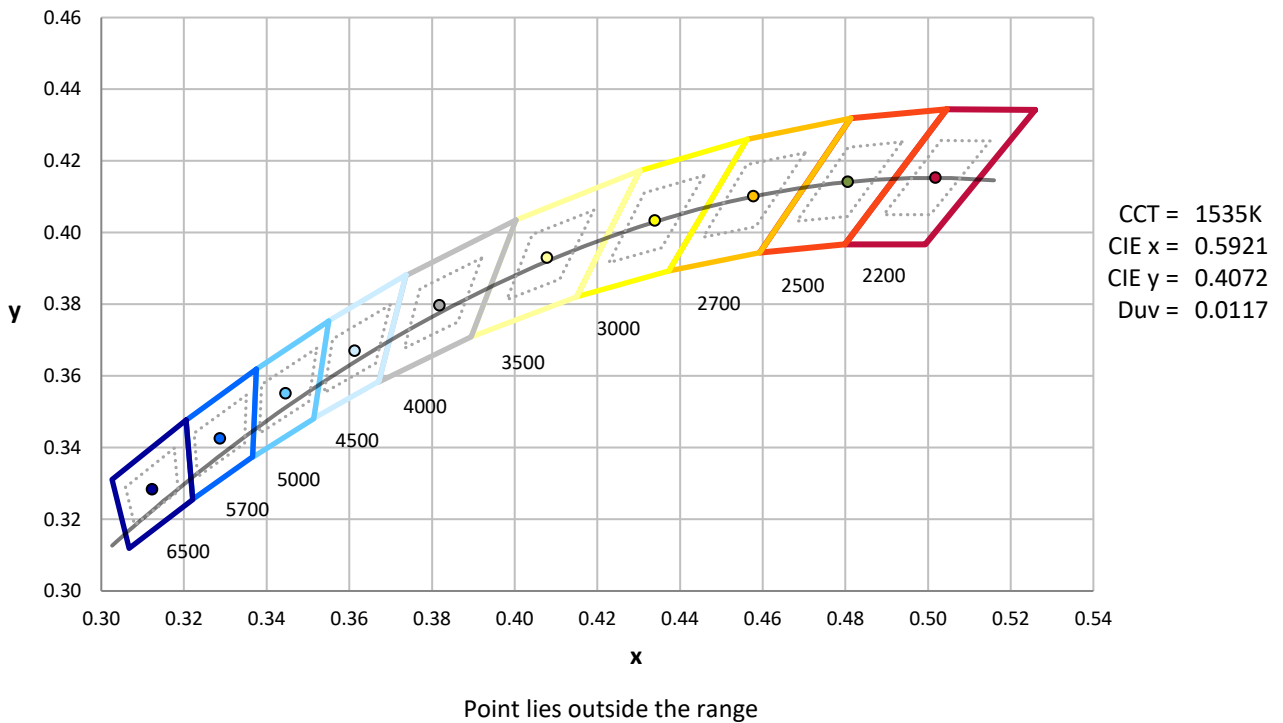
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	12/16/2025	6/16/2026
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208	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: SP1-2511-597-9

CIE 1931 Chromaticity Diagram

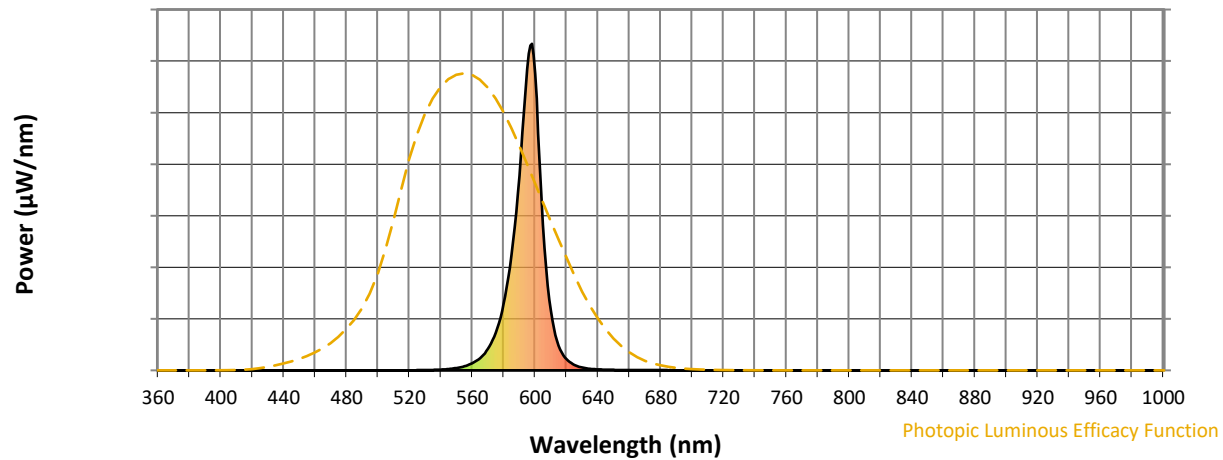


CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



REPORT NUMBER: SP1-2511-597-9

Photopic Flux vs. Wavelength

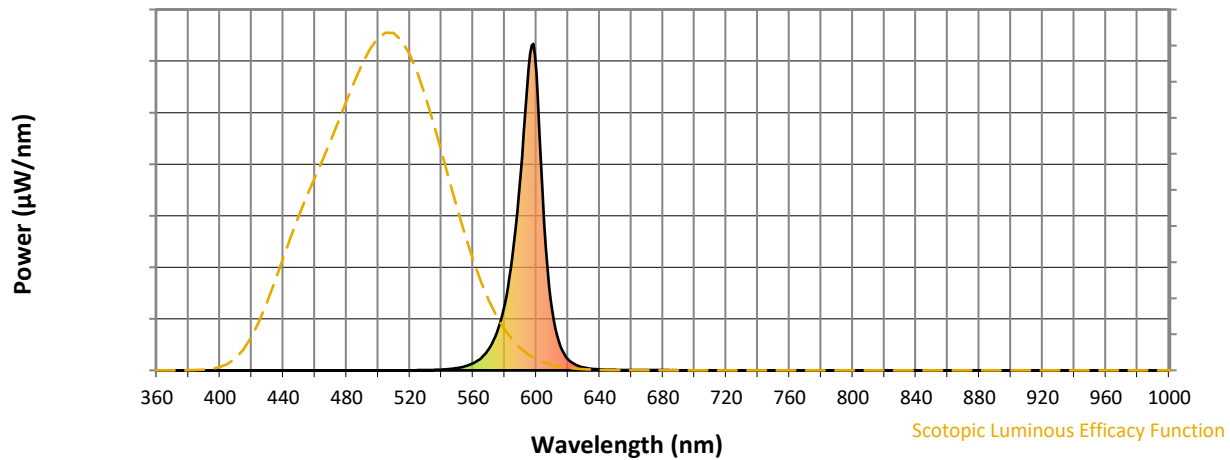


Photopic Lumens: NR

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	0	NR	620	35	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	17	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	9	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	5	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	3	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	2	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	2	NR	780	0	NR	910	0	NR
395	0	NR	525	1	NR	655	1	NR	785	0	NR	915	0	NR
400	0	NR	530	1	NR	660	1	NR	790	0	NR	920	0	NR
405	0	NR	535	1	NR	665	1	NR	795	0	NR	925	0	NR
410	0	NR	540	2	NR	670	1	NR	800	0	NR	930	0	NR
415	0	NR	545	4	NR	675	1	NR	805	0	NR	935	0	NR
420	0	NR	550	7	NR	680	1	NR	810	0	NR	940	0	NR
425	0	NR	555	12	NR	685	0	NR	815	0	NR	945	0	NR
430	0	NR	560	22	NR	690	0	NR	820	0	NR	950	0	NR
435	0	NR	565	38	NR	695	0	NR	825	0	NR	955	0	NR
440	0	NR	570	66	NR	700	0	NR	830	0	NR	960	0	NR
445	0	NR	575	115	NR	705	0	NR	835	0	NR	965	0	NR
450	0	NR	580	203	NR	710	0	NR	840	0	NR	970	0	NR
455	0	NR	585	354	NR	715	0	NR	845	0	NR	975	0	NR
460	0	NR	590	596	NR	720	0	NR	850	0	NR	980	0	NR
465	0	NR	595	923	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	909	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	447	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	183	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	75	NR	745	0	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-9

Scotopic Flux vs. Wavelength



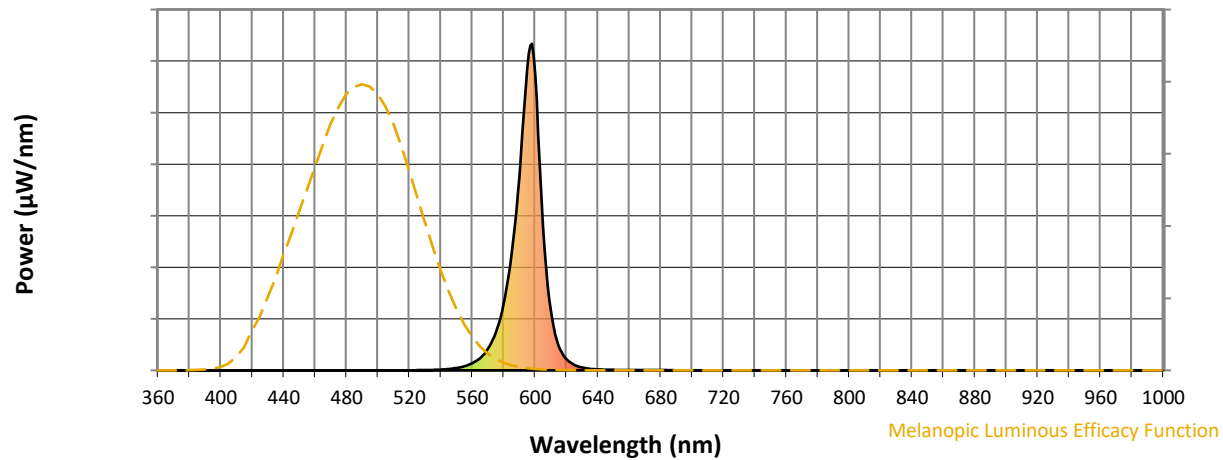
Scotopic Lumens: NR

S/P: 0.22

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	35	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	17	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	9	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	5	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	3	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	2	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	2	NR	780	0	NR	910	0	NR
395	0	NR	525	1	NR	655	1	NR	785	0	NR	915	0	NR
400	0	NR	530	1	NR	660	1	NR	790	0	NR	920	0	NR
405	0	NR	535	1	NR	665	1	NR	795	0	NR	925	0	NR
410	0	NR	540	2	NR	670	1	NR	800	0	NR	930	0	NR
415	0	NR	545	4	NR	675	1	NR	805	0	NR	935	0	NR
420	0	NR	550	7	NR	680	1	NR	810	0	NR	940	0	NR
425	0	NR	555	12	NR	685	0	NR	815	0	NR	945	0	NR
430	0	NR	560	22	NR	690	0	NR	820	0	NR	950	0	NR
435	0	NR	565	38	NR	695	0	NR	825	0	NR	955	0	NR
440	0	NR	570	66	NR	700	0	NR	830	0	NR	960	0	NR
445	0	NR	575	115	NR	705	0	NR	835	0	NR	965	0	NR
450	0	NR	580	203	NR	710	0	NR	840	0	NR	970	0	NR
455	0	NR	585	354	NR	715	0	NR	845	0	NR	975	0	NR
460	0	NR	590	596	NR	720	0	NR	850	0	NR	980	0	NR
465	0	NR	595	923	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	909	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	447	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	183	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	75	NR	745	0	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 0.12

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	0	NR	620	35	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	17	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	9	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	5	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	3	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	2	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	2	NR	780	0	NR	910	0	NR
395	0	NR	525	1	NR	655	1	NR	785	0	NR	915	0	NR
400	0	NR	530	1	NR	660	1	NR	790	0	NR	920	0	NR
405	0	NR	535	1	NR	665	1	NR	795	0	NR	925	0	NR
410	0	NR	540	2	NR	670	1	NR	800	0	NR	930	0	NR
415	0	NR	545	4	NR	675	1	NR	805	0	NR	935	0	NR
420	0	NR	550	7	NR	680	1	NR	810	0	NR	940	0	NR
425	0	NR	555	12	NR	685	0	NR	815	0	NR	945	0	NR
430	0	NR	560	22	NR	690	0	NR	820	0	NR	950	0	NR
435	0	NR	565	38	NR	695	0	NR	825	0	NR	955	0	NR
440	0	NR	570	66	NR	700	0	NR	830	0	NR	960	0	NR
445	0	NR	575	115	NR	705	0	NR	835	0	NR	965	0	NR
450	0	NR	580	203	NR	710	0	NR	840	0	NR	970	0	NR
455	0	NR	585	354	NR	715	0	NR	845	0	NR	975	0	NR
460	0	NR	590	596	NR	720	0	NR	850	0	NR	980	0	NR
465	0	NR	595	923	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	909	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	447	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	183	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	75	NR	745	0	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-9

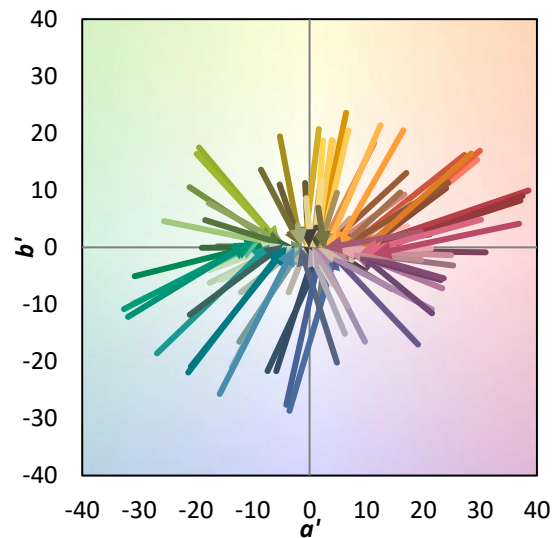
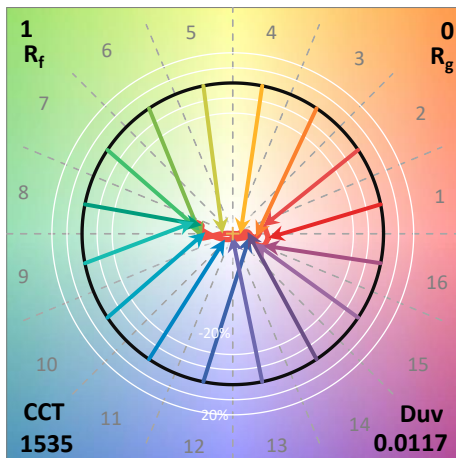
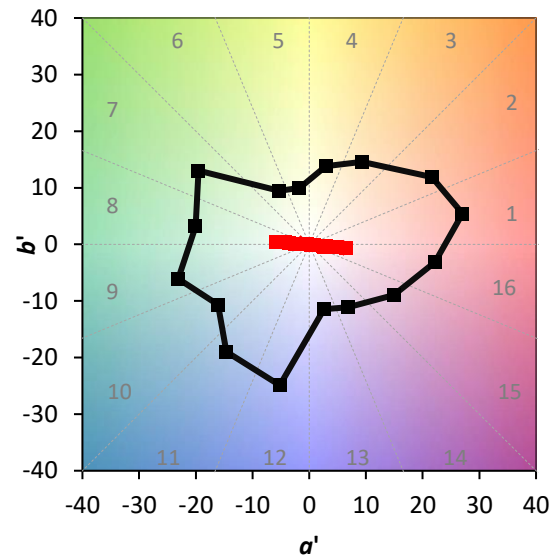
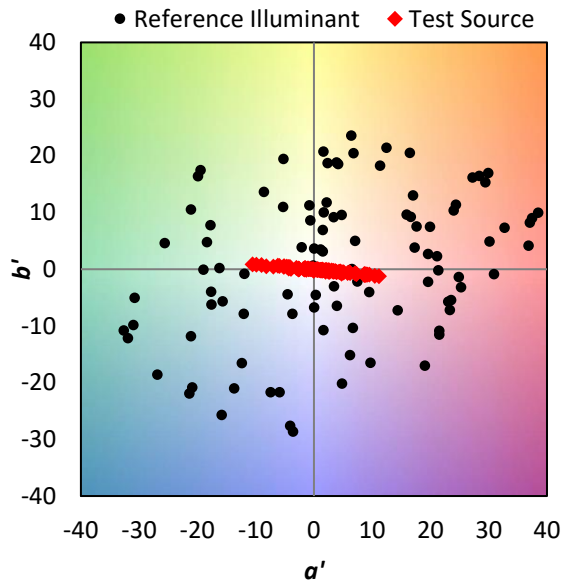
TM-30-18

Summary

$R_f = 1.3$
 $R_g = 0.1$
 $CIE\ R_a = -20.0$
 $R_g = -380.5$

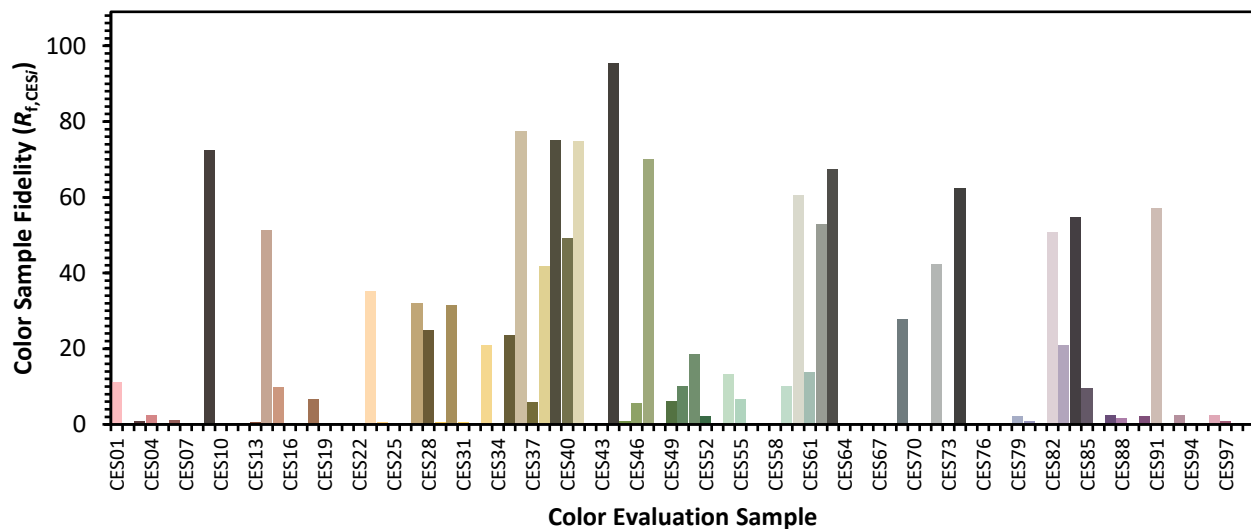


Color Vector Graphics

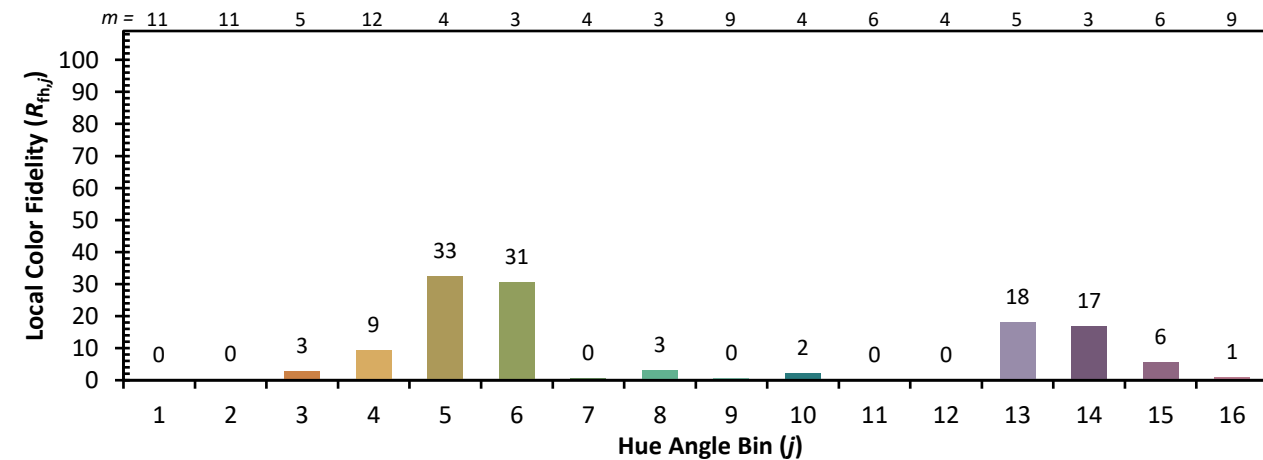
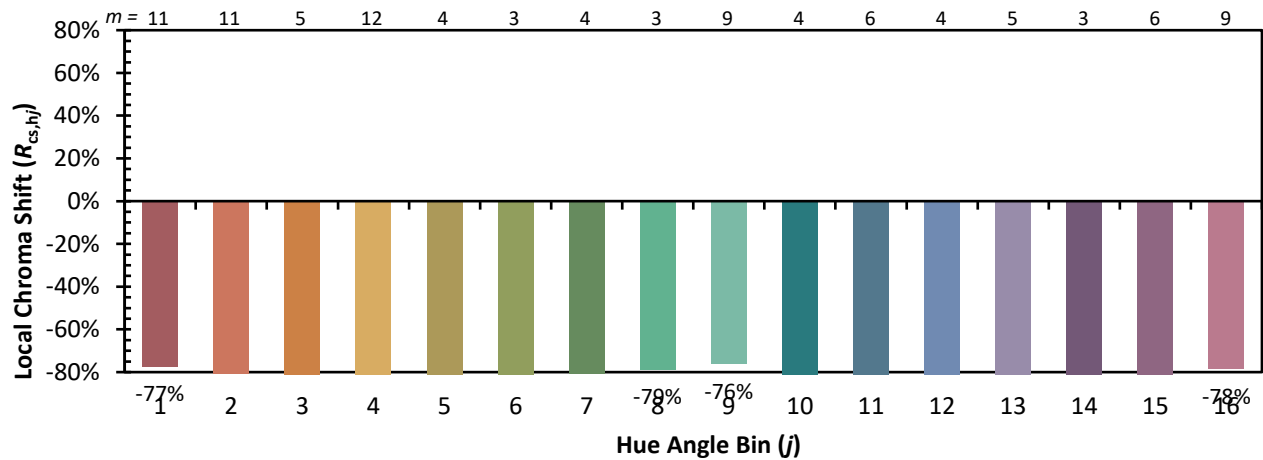


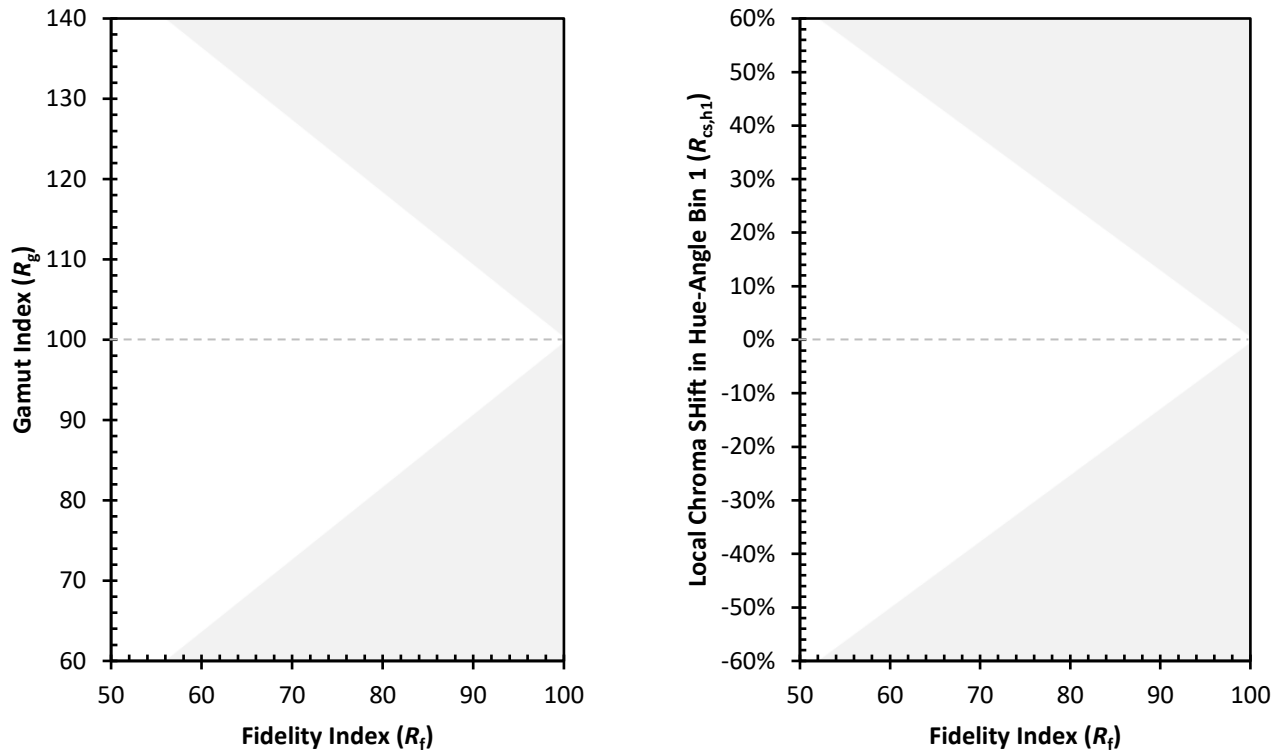
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 90	CES26 = 0	CES51 = 19	CES76 = 0
CES02 = 70	CES27 = 32	CES52 = 2	CES77 = 0
CES03 = 31	CES28 = 25	CES53 = 0	CES78 = 0
CES04 = 77	CES29 = 1	CES54 = 13	CES79 = 2
CES05 = 52	CES30 = 31	CES55 = 7	CES80 = 1
CES06 = 56	CES31 = 1	CES56 = 0	CES81 = 0
CES07 = 41	CES32 = 0	CES57 = 0	CES82 = 51
CES08 = 39	CES33 = 21	CES58 = 0	CES83 = 21
CES09 = 29	CES34 = 0	CES59 = 10	CES84 = 55
CES10 = 87	CES35 = 24	CES60 = 60	CES85 = 10
CES11 = 70	CES36 = 77	CES61 = 14	CES86 = 0
CES12 = 76	CES37 = 6	CES62 = 53	CES87 = 2
CES13 = 47	CES38 = 42	CES63 = 68	CES88 = 2
CES14 = 77	CES39 = 75	CES64 = 0	CES89 = 0
CES15 = 74	CES40 = 49	CES65 = 0	CES90 = 2
CES16 = 49	CES41 = 75	CES66 = 0	CES91 = 57
CES17 = 56	CES42 = 0	CES67 = 0	CES92 = 0
CES18 = 60	CES43 = 0	CES68 = 0	CES93 = 3
CES19 = 80	CES44 = 95	CES69 = 28	CES94 = 0
CES20 = 71	CES45 = 1	CES70 = 0	CES95 = 0
CES21 = 94	CES46 = 6	CES71 = 0	CES96 = 2
CES22 = 87	CES47 = 70	CES72 = 42	CES97 = 1
CES23 = 94	CES48 = 0	CES73 = 0	CES98 = 0
CES24 = 95	CES49 = 6	CES74 = 62	CES99 = 0
CES25 = 79	CES50 = 10	CES75 = 0	



Color Rendition by Hue-Angle Bin



Measure Comparisons


(END OF REPORT)