

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: P1357459

Luminaire Tested: 8ASL4-15HE-2-A59-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1357459
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: 8ASL4-15HE-2-A59-UNV
Description: 8FT 1500 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND A59 LEDS 2 ROW
Light Source: -
Ballast/Driver: -

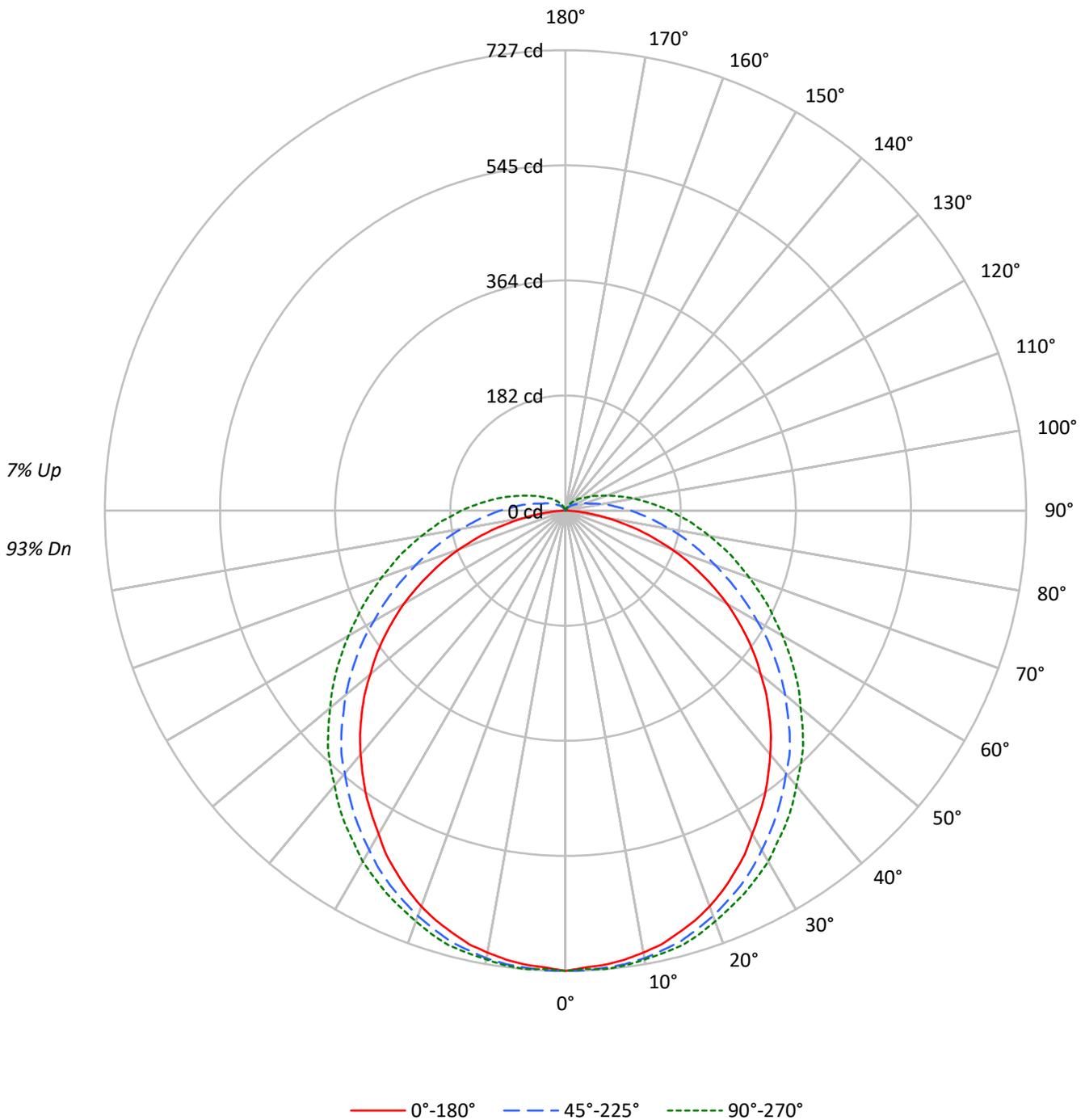
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2495.0 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: 7.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 72
Input Voltage (V): NR
Input Current (A_{in}): 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: P1357459
CATALOG NUMBER: 8ASL4-15HE-2-A59-UNV

Luminous Intensity Polar Plot





TEST NUMBER: P1357459
 CATALOG NUMBER: 8ASL4-15HE-2-A59-UNV

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.9	2.8
10°-20°	198.1	7.9
20°-30°	300.2	12.0
30°-40°	363.1	14.6
40°-50°	382.8	15.3
50°-60°	357.3	14.3
60°-70°	295.0	11.8
70°-80°	214.0	8.6
80°-90°	135.2	5.4
90°-100°	80.7	3.2
100°-110°	46.3	1.9
110°-120°	26.3	1.1
120°-130°	15.0	0.6
130°-140°	8.1	0.3
140°-150°	3.6	0.1
150°-160°	0.6	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	567.2	22.7
0°-40°	930.3	37.3
0°-60°	1670.4	66.9
0°-90°	2314.5	92.8
90°-120°	153.2	6.1
90°-150°	179.9	7.2
90°-180°	181.0	7.3
0°-180°	2495.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	727	727	727	727	727	
5°	720	727	724	724	727	68
15°	690	699	704	706	711	195
25°	631	640	654	663	667	291
35°	548	562	583	599	606	343
45°	455	473	500	521	530	351
55°	350	370	402	430	441	313
65°	235	260	299	336	352	234
75°	121	153	208	251	270	127
85°	23	71	133	178	196	28
90°	0	43	103	146	165	1
95°	0	27	78	119	135	0
105°	0	9	43	75	87	0
115°	0	5	25	46	55	0
125°	0	2	16	30	34	0
135°	0	0	9	18	23	0
145°	0	0	5	11	14	0
155°	0	0	0	2	5	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P1357459
 CATALOG NUMBER: 8ASL4-15HE-2-A59-UNV

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	726.8	726.8	726.8	726.8	726.8
2.5°	722.2	729.1	726.8	724.5	724.5
5°	719.9	726.8	724.5	724.5	726.8
7.5°	715.3	722.2	722.2	722.2	724.5
10°	708.5	717.6	717.6	717.6	719.9
12.5°	701.6	708.5	710.8	713.1	715.3
15°	690.2	699.3	703.9	706.2	710.8
17.5°	678.8	685.6	692.5	699.3	701.6
20°	665.1	674.2	681.1	687.9	690.2
22.5°	649.1	658.2	667.3	674.2	678.8
25°	630.8	639.9	653.6	662.8	667.3
27.5°	612.5	621.6	637.6	649.1	653.6
30°	589.6	603.4	619.4	633.1	639.9
32.5°	569.1	582.8	601.1	617.1	621.6
35°	548.5	562.2	582.8	598.8	605.6
37.5°	525.6	541.6	562.2	580.5	587.4
40°	502.8	518.8	541.6	562.2	566.8
42.5°	479.9	495.9	523.4	541.6	548.5
45°	454.8	473.1	500.5	521.1	530.2
47.5°	429.7	447.9	475.4	498.2	507.4
50°	402.2	422.8	452.5	475.4	484.5
52.5°	377.1	397.7	427.4	452.5	463.9
55°	349.7	370.2	402.2	429.7	441.1
57.5°	322.2	342.8	377.1	406.8	418.2
60°	294.8	315.4	349.7	384.0	395.4
62.5°	265.1	288.0	324.5	358.8	372.5
65°	235.4	260.5	299.4	336.0	352.0
67.5°	208.0	233.1	274.3	315.4	329.1
70°	178.3	205.7	251.4	292.5	308.5
72.5°	148.6	178.3	228.5	272.0	288.0
75°	121.1	153.1	208.0	251.4	269.7
77.5°	91.4	130.3	187.4	233.1	249.1
80°	66.3	107.4	166.8	214.8	230.8
82.5°	43.4	86.8	148.6	196.5	212.5
85°	22.9	70.8	132.6	178.3	196.5
87.5°	6.9	54.9	116.6	162.3	178.3
90°	0.0	43.4	102.8	146.3	164.6
92.5°	0.0	34.3	89.1	132.6	148.6
95°	0.0	27.4	77.7	118.8	134.8
97.5°	0.0	22.9	68.6	107.4	121.1
100°	0.0	18.3	59.4	96.0	109.7
102.5°	0.0	13.7	50.3	84.6	98.3
105°	0.0	9.1	43.4	75.4	86.8
107.5°	0.0	6.9	36.6	66.3	77.7
110°	0.0	6.9	34.3	57.1	68.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	4.6	29.7	52.6	61.7
115°	0.0	4.6	25.1	45.7	54.9
117.5°	0.0	4.6	22.9	41.1	50.3
120°	0.0	4.6	20.6	36.6	43.4
122.5°	0.0	2.3	18.3	32.0	38.9
125°	0.0	2.3	16.0	29.7	34.3
127.5°	0.0	2.3	13.7	27.4	32.0
130°	0.0	2.3	13.7	25.1	29.7
132.5°	0.0	0.0	11.4	22.9	27.4
135°	0.0	0.0	9.1	18.3	22.9
137.5°	0.0	0.0	9.1	16.0	20.6
140°	0.0	0.0	6.9	16.0	18.3
142.5°	0.0	0.0	4.6	13.7	16.0
145°	0.0	0.0	4.6	11.4	13.7
147.5°	0.0	0.0	2.3	9.1	11.4
150°	0.0	0.0	2.3	6.9	9.1
152.5°	0.0	0.0	0.0	4.6	6.9
155°	0.0	0.0	0.0	2.3	4.6
157.5°	0.0	0.0	0.0	0.0	2.3
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	13.07	14.61	13.55	15.07	15.56	15.18	16.71	15.65	17.17	17.66
	3H	14.58	15.98	15.06	16.45	16.98	17.65	19.05	18.13	19.52	20.05
	4H	15.06	16.38	15.56	16.87	17.42	18.87	20.20	19.38	20.69	21.23
	6H	15.33	16.57	15.85	17.07	17.63	20.17	21.41	20.69	21.91	22.47
	8H	15.38	16.57	15.92	17.09	17.66	20.85	22.04	21.39	22.56	23.13
	12H	15.40	16.54	15.94	17.05	17.65	21.62	22.76	22.16	23.28	23.87
4H	2H	13.96	15.29	14.47	15.78	16.32	15.61	16.93	16.11	17.42	17.97
	3H	15.71	16.84	16.22	17.37	17.94	18.31	19.44	18.83	19.97	20.54
	4H	16.31	17.35	16.85	17.89	18.49	19.71	20.74	20.25	21.28	21.88
	6H	16.71	17.63	17.27	18.20	18.81	21.20	22.12	21.76	22.69	23.30
	8H	16.81	17.67	17.38	18.24	18.87	21.99	22.85	22.56	23.42	24.05
	12H	16.86	17.64	17.45	18.24	18.87	22.88	23.67	23.47	24.26	24.89
8H	4H	17.02	17.88	17.58	18.45	19.07	19.93	20.79	20.49	21.35	21.98
	6H	17.61	18.34	18.20	18.95	19.58	21.60	22.33	22.19	22.93	23.57
	8H	17.79	18.45	18.40	19.07	19.72	22.53	23.19	23.14	23.81	24.45
	12H	17.91	18.50	18.52	19.11	19.82	23.61	24.20	24.22	24.80	25.51
12H	4H	17.22	18.01	17.81	18.60	19.23	19.93	20.72	20.52	21.31	21.94
	6H	17.92	18.58	18.52	19.20	19.84	21.63	22.29	22.24	22.91	23.56
	8H	18.20	18.79	18.81	19.40	20.11	22.64	23.23	23.25	23.83	24.54

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
 CIE u': 0.3534
 CIE v': 0.5468
 Duv: 0.0117
 CIE x: 0.5921
 CIE y: 0.4072
 CIE z: 0.0007
 Peak Wavelength (nm): 598
 Dominant Wavelength (nm): 592
 Purity: 99.97894
 R_f: 1.3
 R_g: 0.1

CRI (Ra):	-20.0		
R1:	-32.1	R9:	-380.5
R2:	53.1	R10:	29.9
R3:	18.5	R11:	-92.0
R4:	-65.7	R12:	-8.5
R5:	-38.6	R13:	-13.5
R6:	42.8	R14:	47.1
R7:	-6.2	R15:	-65.4
R8:	-132.3		



Test Conditions

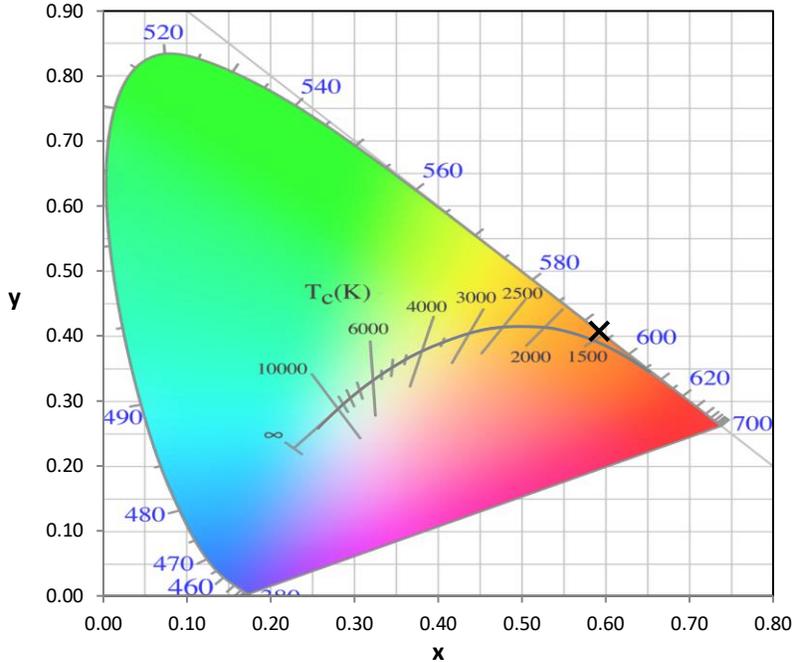
Stabilization Time: 77M
 Operation Time: 2H 17M
 Sphere Temperature (°C): 25.1

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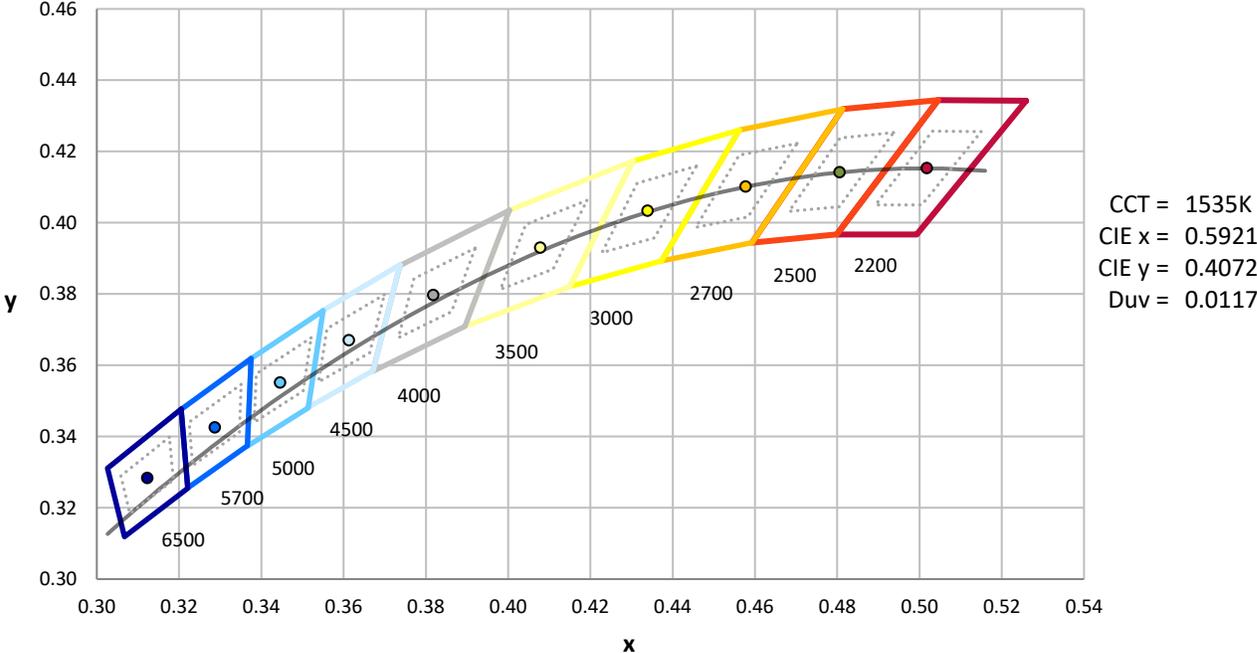
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	12/16/2025	6/16/2026
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208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



Point lies outside the range

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Photopic Flux vs. Wavelength

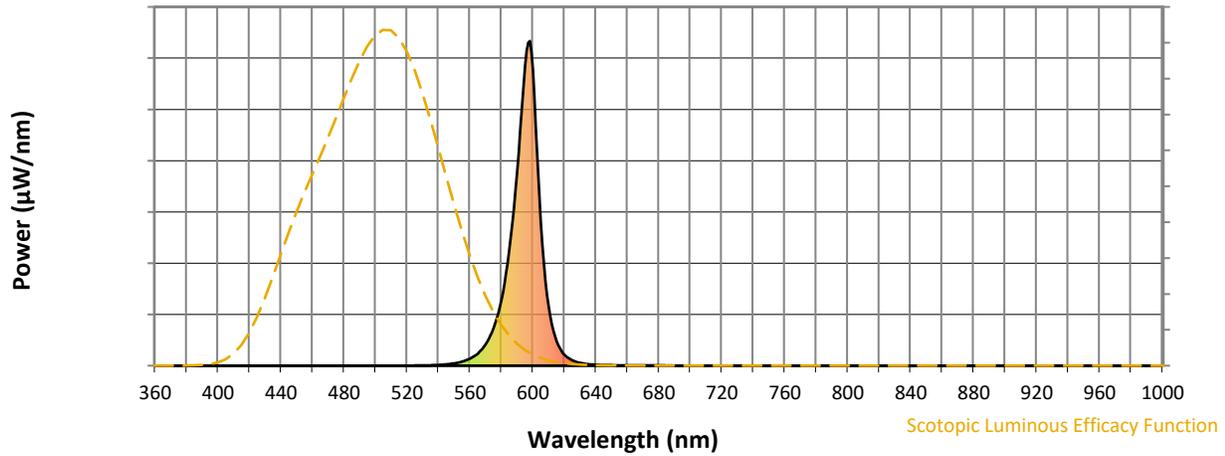


Photopic Lumens: NR

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	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			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 0.22

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			

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Melanopic Flux vs. Wavelength



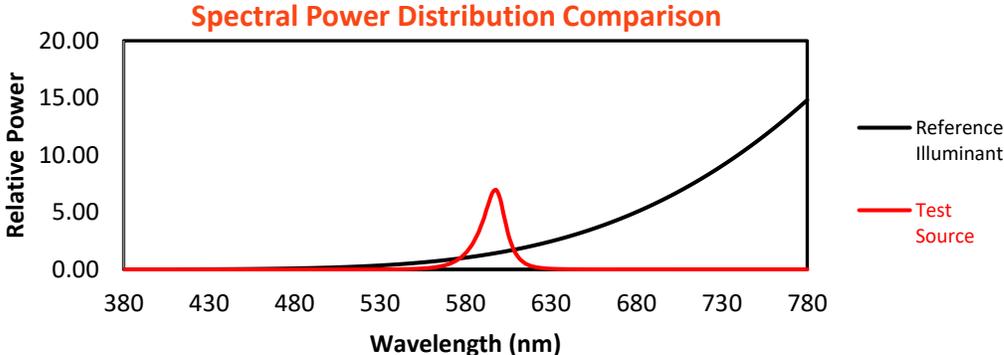
Melanopic Lumens: NR

M/P: 0.12

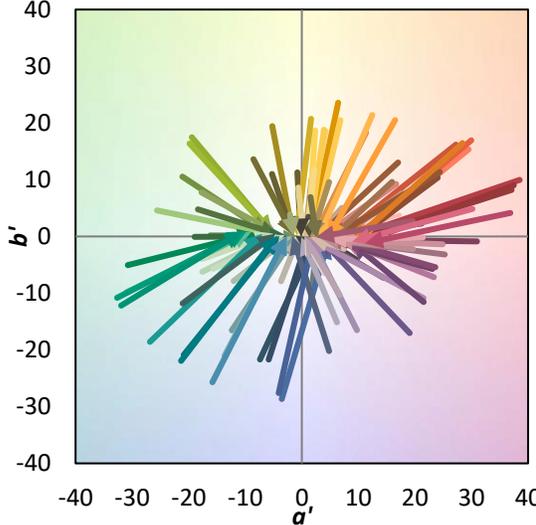
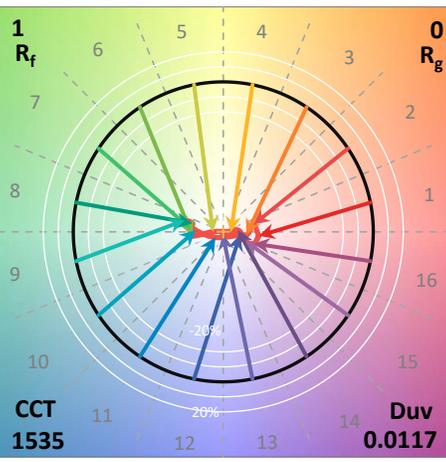
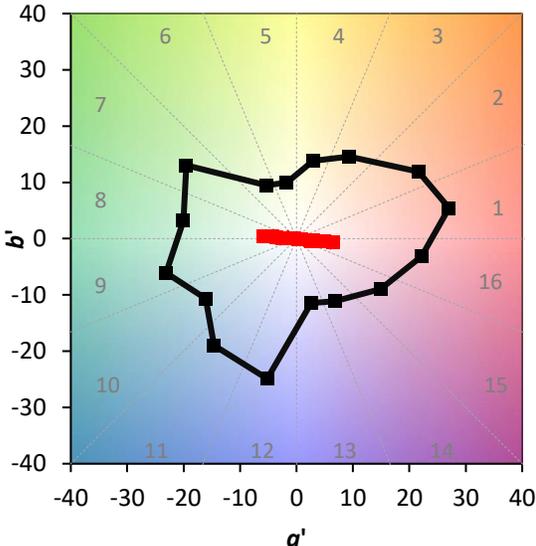
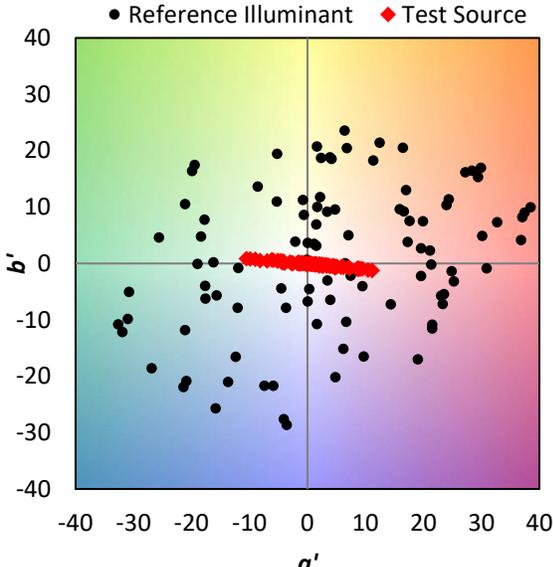
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	0	NR	620	35	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	17	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	9	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			

Summary

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

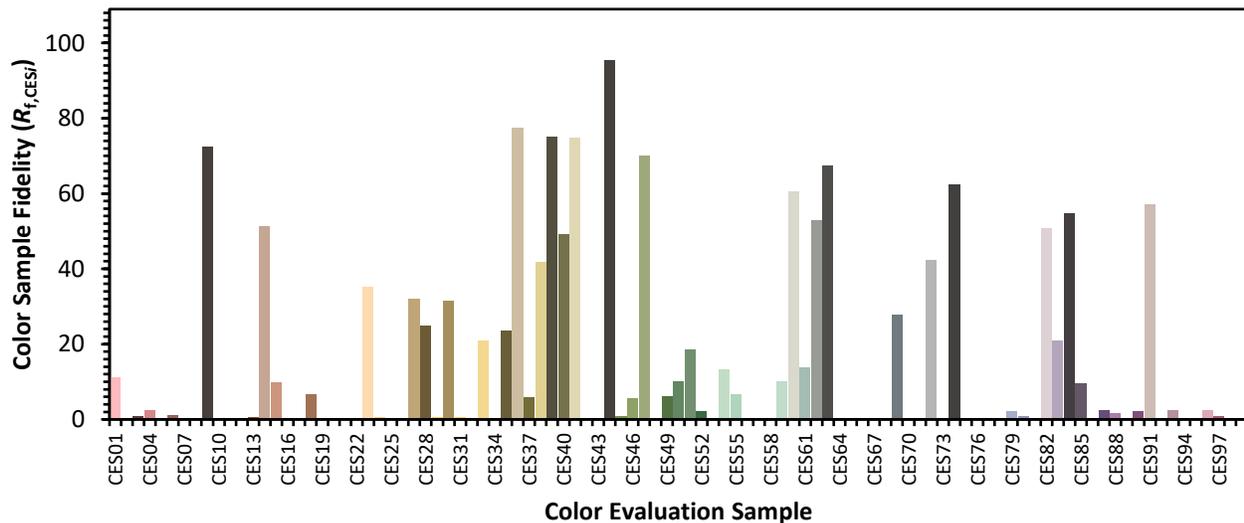


Color Vector Graphics

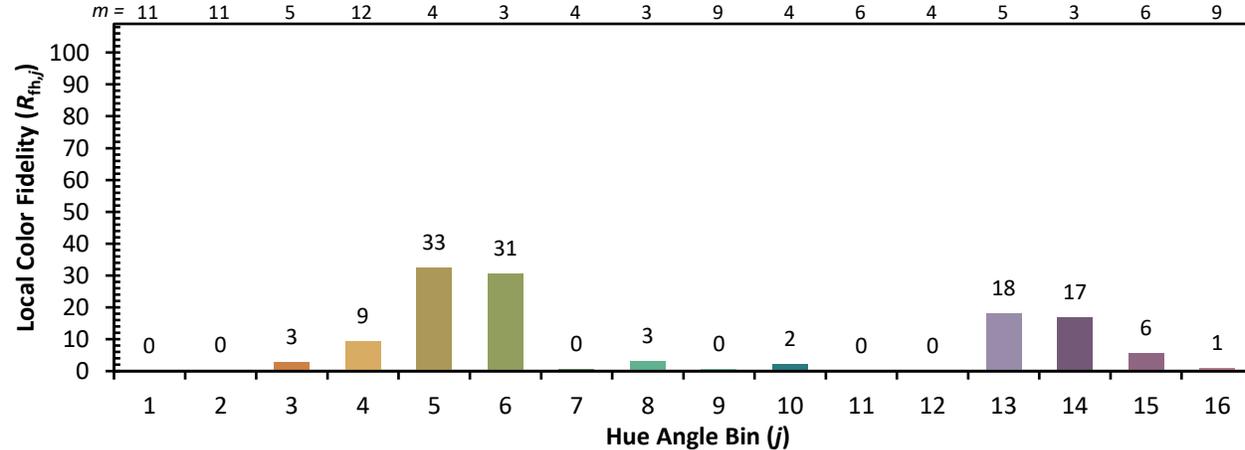
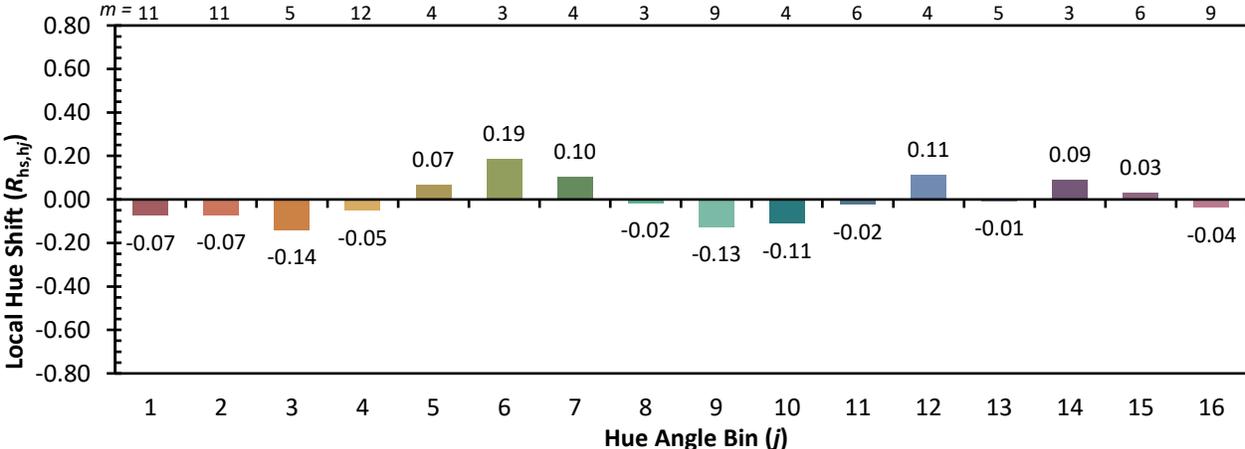
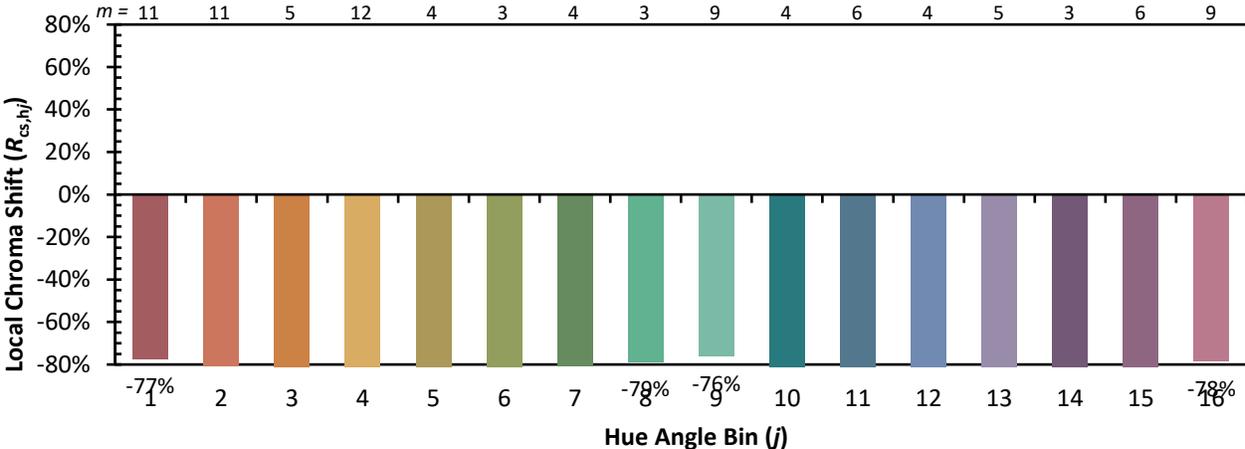


Individual Sample Fidelity Index ($R_{f,i}$)

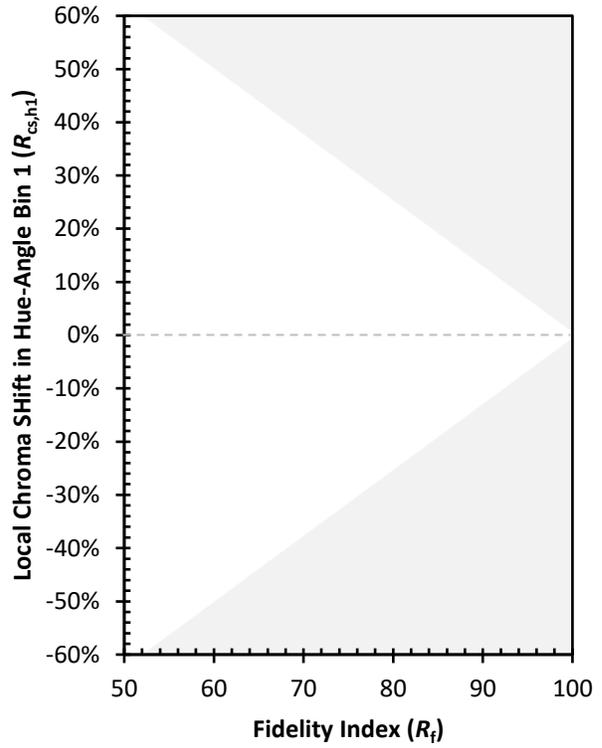
CES01 = 90	CES26 = 0	CES51 = 19	CES76 = 0
CES02 = 70	CES27 = 32	CES52 = 2	CES77 = 0
CES03 = 31	CES28 = 25	CES53 = 0	CES78 = 0
CES04 = 77	CES29 = 1	CES54 = 13	CES79 = 2
CES05 = 52	CES30 = 31	CES55 = 7	CES80 = 1
CES06 = 56	CES31 = 1	CES56 = 0	CES81 = 0
CES07 = 41	CES32 = 0	CES57 = 0	CES82 = 51
CES08 = 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)