

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P827200

Luminaire Tested: **OHBL-36SE-A-UNV-L840-CD-UPL36**

Issue Date: 5/3/2024



Test Information

Test Method: LM-79-08
Report Number: P827200
REPORT IS A COMBINATION OF REPORTS P826317 AND G3-2310-221-2
Test Lab: INNOVATION CENTER
Issue Date: 5/3/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: OHBL-36SE-A-UNV-L840-CD-UPL36
Description: 36000 LUMEN OHBL SE LED LUMINAIRE WITH 80CRI, 4000K LEDS AND AISLE
LENSAND 3600 LUMEN UPLIGHT MODULE
Light Source: -
Ballast/Driver: -

Summary

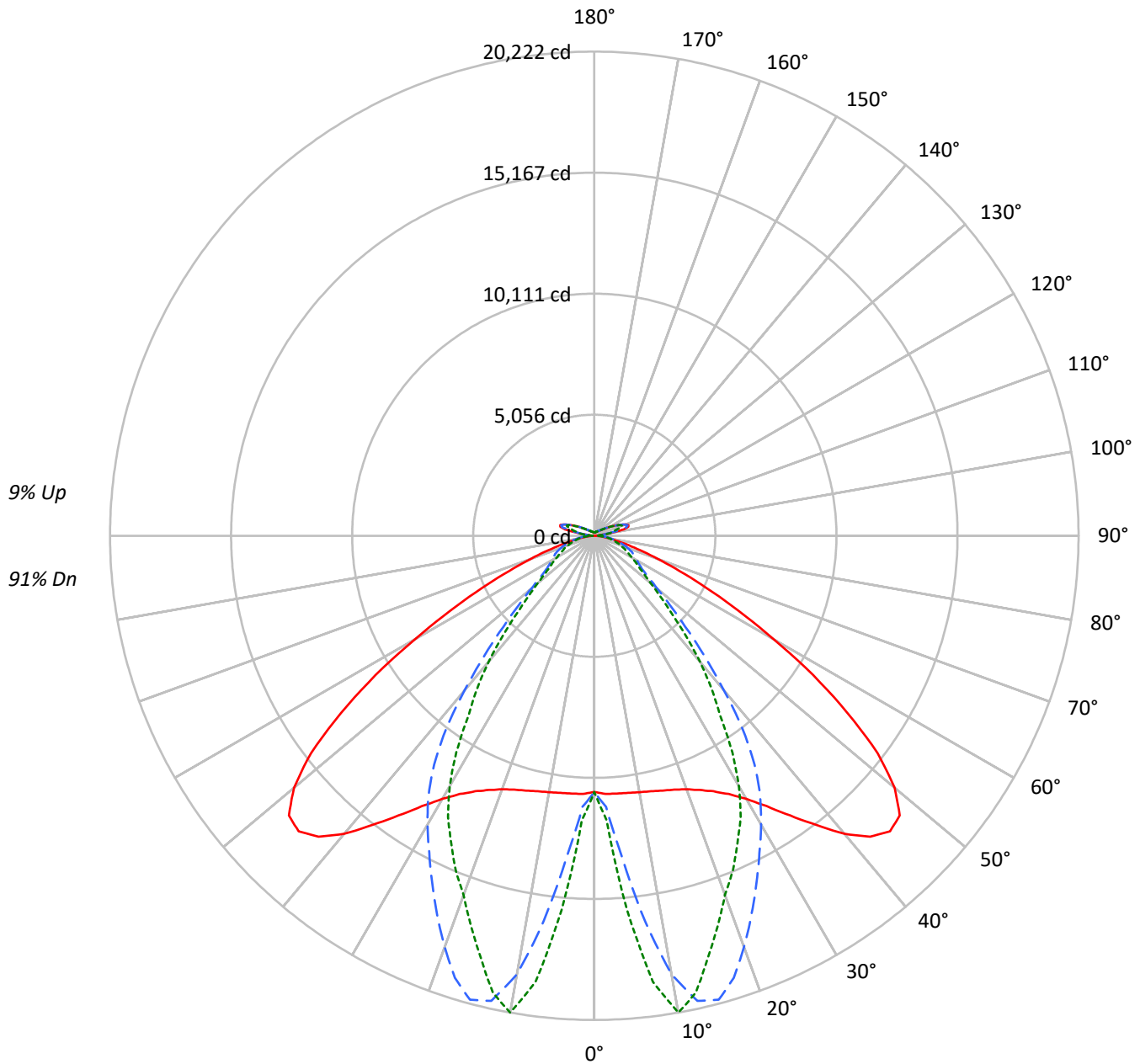
Lumens per Lamp: N/A
Luminaire Lumens: 37921.1 lumens
Efficiency: N/A
Efficacy: 158.1 lumens/watt
Spacing Criteria (0/90/45): 2.18 / 1.37 / 1.3
Luminous Opening: Rectangular w/ Sides (W: 3.78' x L: 1.8' x H: 0.17')
CIE Type: Direct

Input Watts (W): 239.8
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: 25 FT

TEST NUMBER: P827200

CATALOG NUMBER: OHBL-36SE-A-UNV-L840-CD-UPL36

Luminous Intensity Polar Plot





TEST NUMBER: P827200

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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	30	10	50	30	10
RCR																				
0	117	117	117	117	113	113	113	113	106	106	106	99	99	99	93	93	93	91		
1	108	104	101	98	105	101	98	95	95	93	90	90	88	86	85	83	82	79		
2	100	93	87	83	97	91	85	81	86	81	78	81	78	75	77	74	72	69		
3	93	84	77	71	89	81	75	70	77	72	67	73	69	65	70	66	63	61		
4	86	75	68	62	83	73	66	61	70	64	59	67	62	57	63	59	56	54		
5	80	68	60	55	77	67	59	54	64	57	52	61	55	51	58	53	50	48		
6	74	62	54	49	72	61	53	48	58	52	47	56	50	46	53	48	45	43		
7	69	57	49	44	67	56	48	43	53	47	42	51	46	41	49	44	40	38		
8	64	52	45	39	63	51	44	39	49	43	38	47	42	37	46	40	37	35		
9	60	48	41	36	59	47	40	35	46	39	35	44	38	34	42	37	34	32		
10	57	45	37	33	55	44	37	32	42	36	32	41	35	31	39	34	31	29		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	16923	16923	16923
5°	17020	21295	24808
10°	17183	29372	32223
15°	17604	32011	29575
20°	18344	29716	26431
25°	19696	26738	24176
30°	21979	24088	21498
35°	25859	21095	17131
40°	31121	16075	13634
45°	35734	10960	9704
50°	36269	7524	7177
55°	31438	5927	5863
60°	23523	5552	5275
65°	16159	5578	4997
70°	10362	5392	4839
75°	6257	5005	4630
80°	3707	4419	4777
85°	1808	3829	4429



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1397.0	3.7
10°-20°	4930.7	13.0
20°-30°	7265.8	19.2
30°-40°	7635.2	20.1
40°-50°	5842.3	15.4
50°-60°	3527.8	9.3
60°-70°	2152.8	5.7
70°-80°	1175.0	3.1
80°-90°	420.1	1.1
90°-100°	275.1	0.7
100°-110°	1246.1	3.3
110°-120°	1031.3	2.7
120°-130°	488.1	1.3
130°-140°	247.1	0.7
140°-150°	144.5	0.4
150°-160°	84.7	0.2
160°-170°	44.1	0.1
170°-180°	13.4	0.0
0°-30°	13593.5	35.8
0°-40°	21228.7	56.0
0°-60°	30598.8	80.7
0°-90°	34346.7	90.6
90°-120°	2552.5	6.7
90°-150°	3432.2	9.1
90°-180°	3574.0	9.4
0°-180°	37921.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10701	10701	10701	10701	10701	
5°	10808	11596	13527	15104	15687	###
15°	11019	17162	20058	18717	18277	3133
25°	11775	19918	16013	14498	14140	5503
35°	14263	15951	11666	9715	9147	9048
45°	17457	9102	5374	4729	4530	13190
55°	12910	3086	2446	2267	2260	11408
65°	5176	1954	1800	1540	1462	5303
75°	1378	1215	1115	920	882	1586
85°	205	377	444	405	367	253
90°	8	49	63	72	73	17
95°	62	124	165	210	226	231
105°	1477	1474	1386	1031	931	1404
115°	1030	1016	1024	1031	1021	1041
125°	507	525	537	528	518	477
135°	300	307	315	318	319	237
145°	218	223	228	231	232	139
155°	176	179	182	184	184	82
165°	151	153	154	155	156	43
175°	138	138	139	139	140	13
180°	136	136	136	136	136	



TEST NUMBER: P827200

CATALOG NUMBER: OHBL-36SE-A-UNV-L840-CD-UPL36

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	10701.0	10701.0	10701.0	10701.0	10701.0
2.5°	10788.6	10898.7	11332.8	11783.5	11893.1
5°	10808.3	11595.8	13527.2	15104.3	15687.1
7.5°	10831.3	12725.1	16246.0	18177.0	18795.1
10°	10874.9	14153.1	18601.9	19988.1	20221.7
12.5°	10929.0	15666.0	19898.2	19847.7	19553.1
15°	11019.0	17162.4	20057.9	18717.1	18277.0
17.5°	11113.5	18428.4	19361.3	17486.4	17103.2
20°	11267.2	19368.2	18277.9	16392.4	15956.9
22.5°	11488.9	19884.9	17141.7	15403.1	15119.0
25°	11774.7	19918.4	16013.4	14497.7	14139.8
27.5°	12157.9	19456.3	14931.8	13610.7	13232.6
30°	12679.2	18571.6	13926.9	12541.1	12072.1
32.5°	13387.2	17298.2	12890.7	11249.8	10723.9
35°	14262.8	15951.0	11666.0	9715.3	9147.2
37.5°	15218.1	14455.0	10179.7	8356.6	8025.7
40°	16246.0	12913.7	8418.1	7085.0	6848.3
42.5°	17048.1	11237.8	6781.7	5887.8	5635.9
45°	17457.0	9101.8	5373.9	4728.7	4530.0
47.5°	17297.8	7065.3	4260.2	3757.3	3697.6
50°	16368.5	5217.0	3410.4	3095.1	3070.3
52.5°	14915.7	3888.5	2817.0	2622.0	2579.3
55°	12910.0	3086.4	2446.3	2267.3	2260.4
57.5°	10839.1	2622.0	2220.5	2081.9	2033.7
60°	8630.1	2338.0	2049.3	1892.9	1795.1
62.5°	6764.7	2139.3	1923.6	1711.1	1619.8
65°	5175.7	1953.9	1799.7	1540.0	1461.5
67.5°	3858.2	1777.2	1648.3	1360.1	1314.2
70°	2811.1	1596.0	1475.7	1209.6	1173.3
72.5°	2003.4	1415.2	1303.2	1068.3	1028.3
75°	1378.0	1215.1	1114.6	919.6	882.4
77.5°	929.7	1010.9	928.8	785.1	769.5
80°	620.9	801.7	751.2	665.4	655.7
82.5°	376.7	581.9	592.9	541.0	514.9
85°	205.1	376.7	444.2	404.7	367.1
87.5°	80.3	208.8	306.1	274.9	258.8
90°	8.0	49.0	63.0	72.0	73.0
92.5°	25.0	60.0	77.0	96.0	102.0
95°	62.0	124.0	165.0	210.0	226.0
97.5°	374.0	402.0	349.0	417.0	441.0
100°	803.0	824.0	639.0	644.0	664.0
102.5°	1258.0	1275.0	1008.0	834.0	804.0
105°	1477.0	1474.0	1386.0	1031.0	931.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1210.0	1213.0	1202.0	1198.0	1166.0
115°	1030.0	1016.0	1024.0	1031.0	1021.0
117.5°	881.0	871.0	879.0	875.0	864.0
120°	741.0	741.0	751.0	737.0	729.0
122.5°	614.0	628.0	635.0	625.0	612.0
125°	507.0	525.0	537.0	528.0	518.0
127.5°	435.0	441.0	455.0	450.0	450.0
130°	374.0	382.0	393.0	395.0	393.0
132.5°	332.0	340.0	350.0	353.0	356.0
135°	300.0	307.0	315.0	318.0	319.0
137.5°	274.0	280.0	286.0	291.0	292.0
140°	252.0	258.0	264.0	268.0	268.0
142.5°	234.0	240.0	245.0	248.0	248.0
145°	218.0	223.0	228.0	231.0	232.0
147.5°	206.0	210.0	215.0	216.0	217.0
150°	195.0	198.0	202.0	204.0	205.0
152.5°	185.0	188.0	192.0	193.0	194.0
155°	176.0	179.0	182.0	184.0	184.0
157.5°	168.0	171.0	174.0	175.0	175.0
160°	162.0	164.0	167.0	167.0	168.0
162.5°	156.0	158.0	160.0	161.0	162.0
165°	151.0	153.0	154.0	155.0	156.0
167.5°	147.0	148.0	149.0	150.0	150.0
170°	143.0	144.0	145.0	145.0	146.0
172.5°	140.0	141.0	142.0	142.0	142.0
175°	138.0	138.0	139.0	139.0	140.0
177.5°	136.0	137.0	137.0	137.0	138.0
180°	136.0	136.0	136.0	136.0	136.0



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - 90°-270°







107.5°	1491.0	1494.0	1458.0	1284.0	1110.0
110°	1376.0	1389.0	1366.0	1309.0	1230.0



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

Report Prepared for

Cooper Lighting Solutions

METALUX

Report Number: SP1-2304-001-1

Test Date: 05/31/2023

Luminaire Tested: OHB-15SE-N-UNV-L840

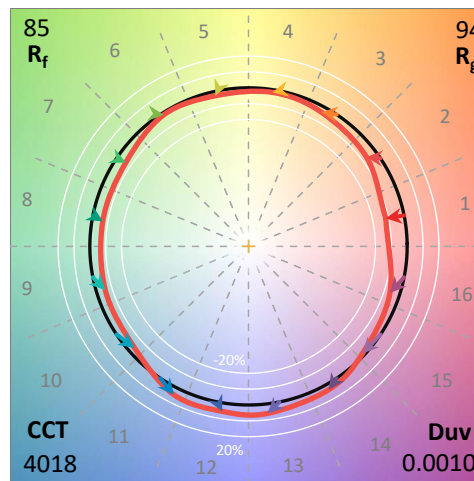
Data in this report applies to families of products including OHB-15SE-N-UNV-L840.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2304-001-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 05/31/2023
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: METALUX
 Catalog Number: **OHB-15SE-N-UNV-L840**
 Description: 15SE OHB WITH APT LEDS, NARROW LENS, 80CRI 4000K

Spectral Parameters

CCT (K):	4018	CRI (Ra):	84.0		
CIE u':	0.2242	R1:	82.5	R9:	11.5
CIE v':	0.5025	R2:	91.6	R10:	79.8
Duv:	0.0010	R3:	96.1	R11:	80.5
CIE x:	0.3803	R4:	81.4	R12:	64.0
CIE y:	0.3788	R5:	82.4	R13:	85.1
CIE z:	0.2410	R6:	88.0	R14:	98.4
Peak Wavelength (nm):	454	R7:	85.5		
Dominant Wavelength (nm):	578	R8:	64.7		
Purity:	27.9				
Rf:	84.5				
Rg:	93.7				



Test Conditions

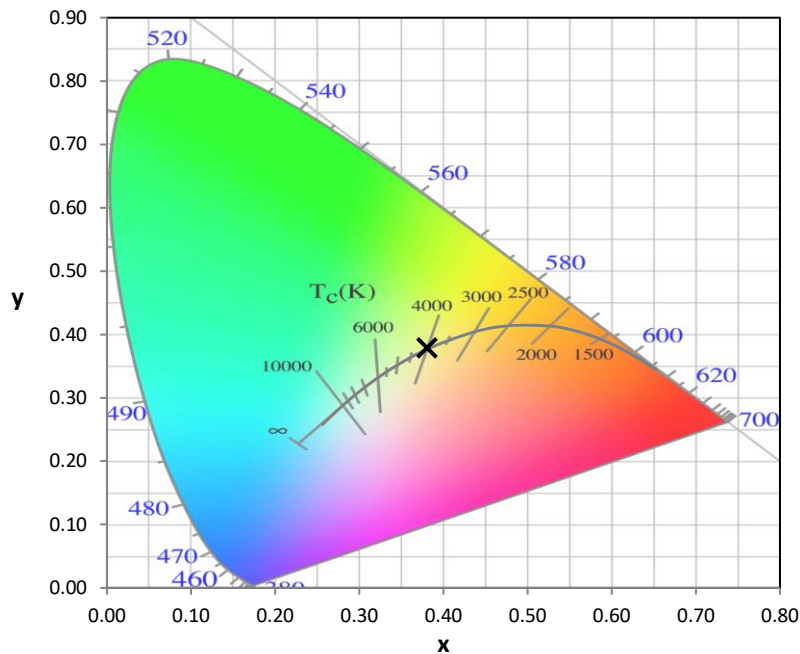
Stabilization Time: 23M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.7/44%
 Sphere Temperature (°C): 25.3

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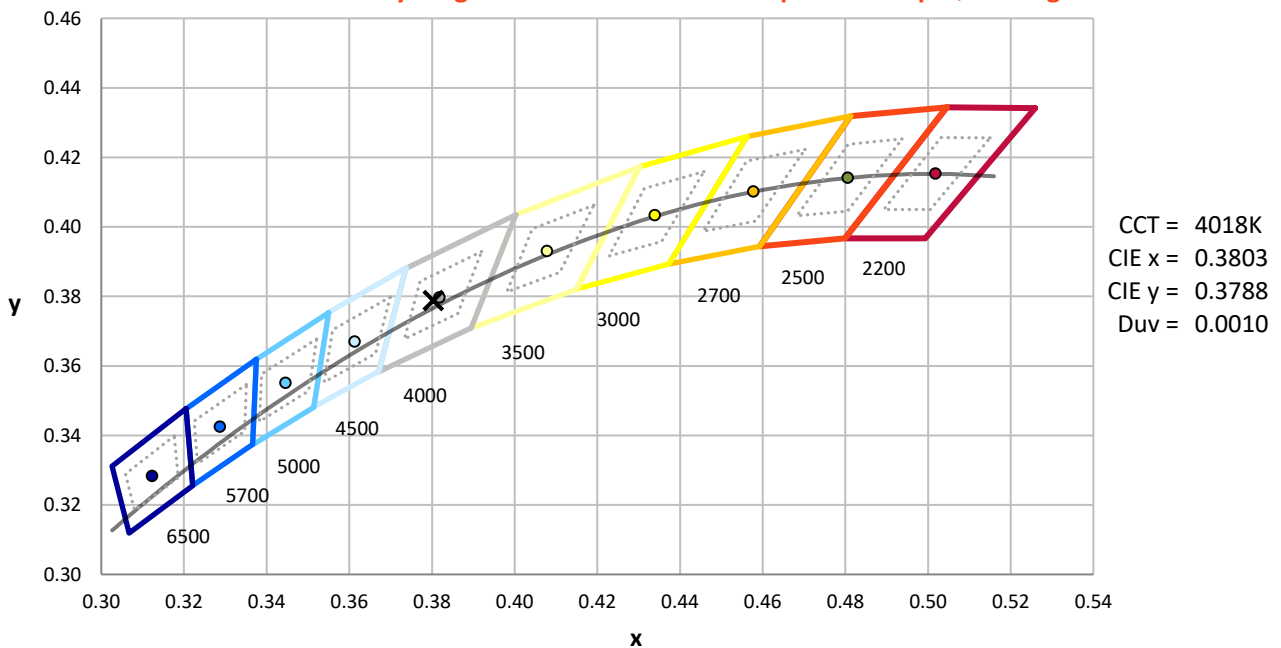
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	2/9/2023	8/9/2023
Power Meter	XITRON 2801 IN0071	11/29/2022	11/29/2023
AC Power Source	CHROMA 61603 IN0063	11/28/2022	11/28/2023
DC Power Source	AGILENT E3634A IN0208	11/28/2022	11/28/2023
Sphere Thermometer	ONSET IN0085	11/28/2022	11/28/2023
Room Thermometer	ONSET IN0046	11/28/2022	11/28/2023

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CIE 1931 Chromaticity Diagram



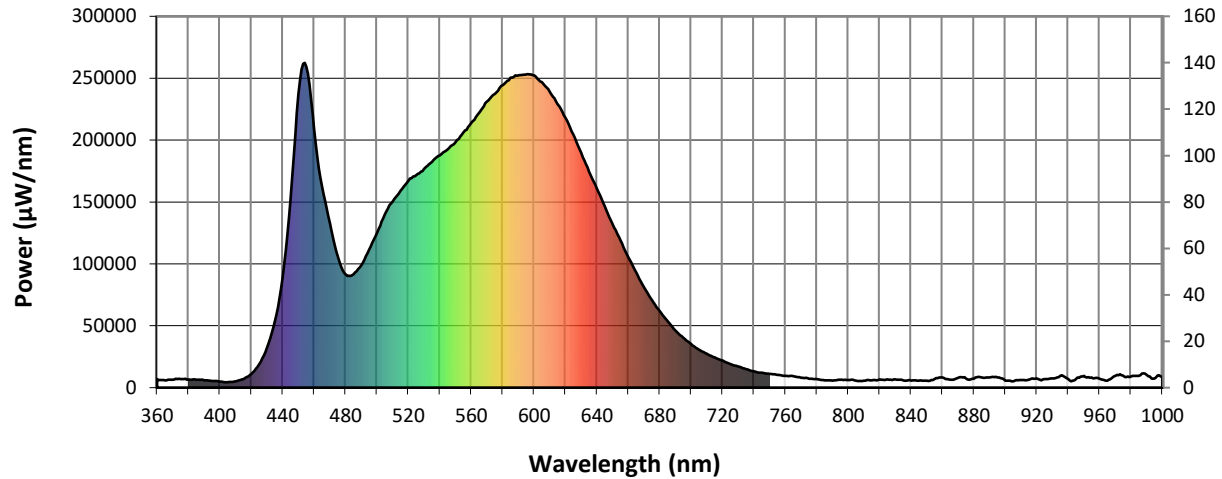
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength

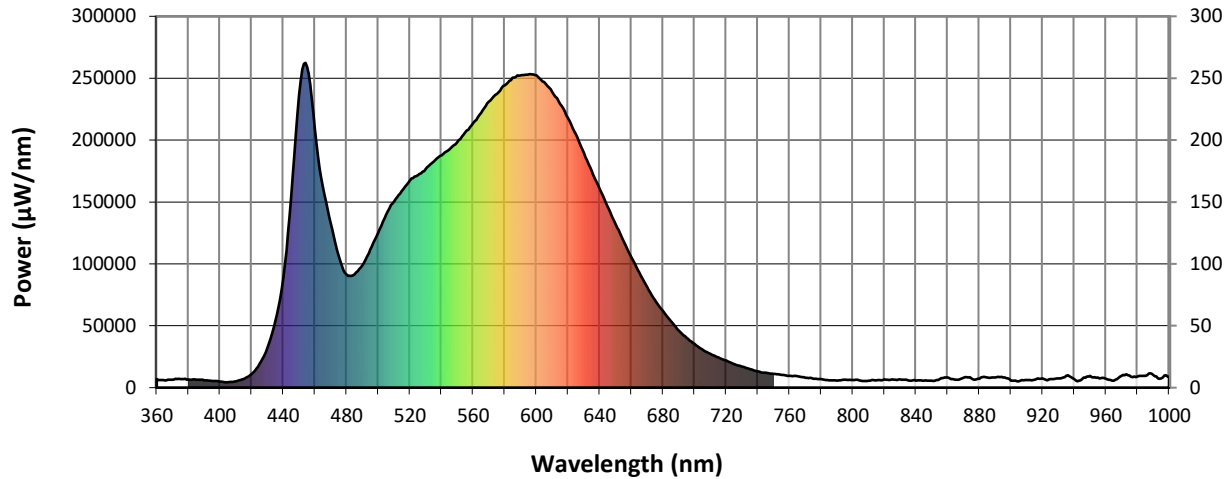


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λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	6853	NR	490	98921	NR	620	217813	NR	750	11077	NR	880	7212	NR
365	5941	NR	495	111249	NR	625	204757	NR	755	10374	NR	885	8336	NR
370	6345	NR	500	125186	NR	630	189812	NR	760	9527	NR	890	8299	NR
375	7044	NR	505	139782	NR	635	174714	NR	765	9227	NR	895	8295	NR
380	6587	NR	510	150374	NR	640	160641	NR	770	8071	NR	900	5725	NR
385	6443	NR	515	158837	NR	645	146146	NR	775	7303	NR	905	5085	NR
390	5977	NR	520	167163	NR	650	132087	NR	780	6839	NR	910	6133	NR
395	5473	NR	525	171514	NR	655	118817	NR	785	5988	NR	915	6429	NR
400	4874	NR	530	176783	NR	660	105411	NR	790	5761	NR	920	7354	NR
405	4470	NR	535	182412	NR	665	92911	NR	795	6396	NR	925	6889	NR
410	5232	NR	540	187578	NR	670	81240	NR	800	6049	NR	930	7465	NR
415	7030	NR	545	192635	NR	675	70762	NR	805	5748	NR	935	9430	NR
420	11074	NR	550	198282	NR	680	61913	NR	810	5571	NR	940	6867	NR
425	19121	NR	555	206255	NR	685	53742	NR	815	5977	NR	945	7026	NR
430	32148	NR	560	213621	NR	690	46348	NR	820	6580	NR	950	9476	NR
435	54073	NR	565	222021	NR	695	40313	NR	825	6610	NR	955	8237	NR
440	89242	NR	570	230974	NR	700	35240	NR	830	6652	NR	960	7127	NR
445	153497	NR	575	237268	NR	705	30635	NR	835	5919	NR	965	5614	NR
450	236793	NR	580	244317	NR	710	27359	NR	840	5707	NR	970	9396	NR
455	259282	NR	585	250340	NR	715	24401	NR	845	5548	NR	975	9700	NR
460	209272	NR	590	252316	NR	720	21810	NR	850	5560	NR	980	8916	NR
465	162456	NR	595	253019	NR	725	19005	NR	855	6972	NR	985	9548	NR
470	132627	NR	600	252244	NR	730	17009	NR	860	8311	NR	990	10271	NR
475	106283	NR	605	246798	NR	735	14940	NR	865	6330	NR	995	7323	NR
480	91347	NR	610	238764	NR	740	13159	NR	870	8019	NR	1000	8719	NR
485	91575	NR	615	229100	NR	745	12000	NR	875	7419	NR			

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Scotopic Flux vs. Wavelength



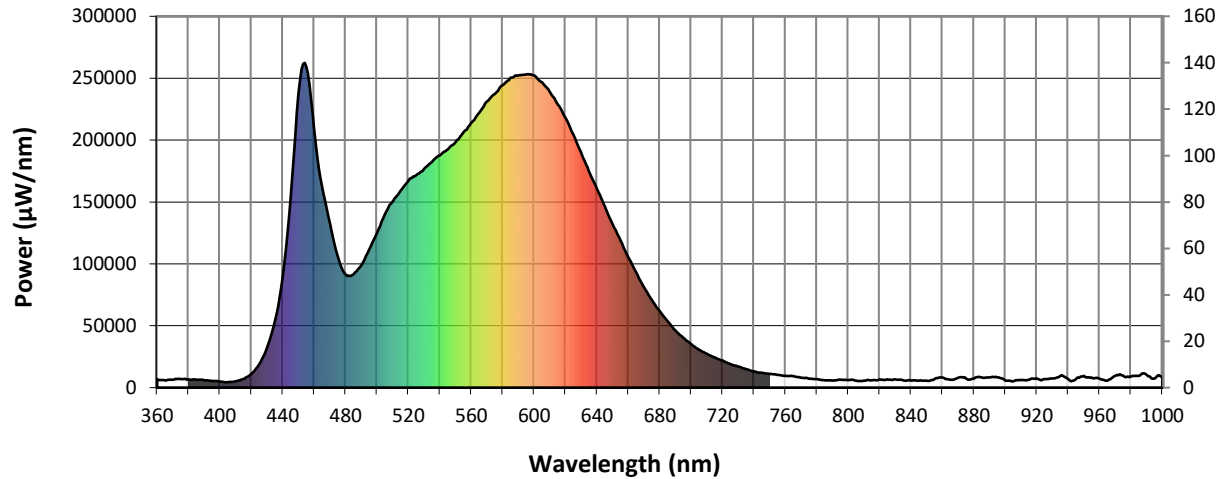
Scotopic Lumens: 25258.1

S/P: 1.73

λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	6853	NR	490	98921	NR	620	217813	NR	750	11077	NR	880	7212	NR
365	5941	NR	495	111249	NR	625	204757	NR	755	10374	NR	885	8336	NR
370	6345	NR	500	125186	NR	630	189812	NR	760	9527	NR	890	8299	NR
375	7044	NR	505	139782	NR	635	174714	NR	765	9227	NR	895	8295	NR
380	6587	NR	510	150374	NR	640	160641	NR	770	8071	NR	900	5725	NR
385	6443	NR	515	158837	NR	645	146146	NR	775	7303	NR	905	5085	NR
390	5977	NR	520	167163	NR	650	132087	NR	780	6839	NR	910	6133	NR
395	5473	NR	525	171514	NR	655	118817	NR	785	5988	NR	915	6429	NR
400	4874	NR	530	176783	NR	660	105411	NR	790	5761	NR	920	7354	NR
405	4470	NR	535	182412	NR	665	92911	NR	795	6396	NR	925	6889	NR
410	5232	NR	540	187578	NR	670	81240	NR	800	6049	NR	930	7465	NR
415	7030	NR	545	192635	NR	675	70762	NR	805	5748	NR	935	9430	NR
420	11074	NR	550	198282	NR	680	61913	NR	810	5571	NR	940	6867	NR
425	19121	NR	555	206255	NR	685	53742	NR	815	5977	NR	945	7026	NR
430	32148	NR	560	213621	NR	690	46348	NR	820	6580	NR	950	9476	NR
435	54073	NR	565	222021	NR	695	40313	NR	825	6610	NR	955	8237	NR
440	89242	NR	570	230974	NR	700	35240	NR	830	6652	NR	960	7127	NR
445	153497	NR	575	237268	NR	705	30635	NR	835	5919	NR	965	5614	NR
450	236793	NR	580	244317	NR	710	27359	NR	840	5707	NR	970	9396	NR
455	259282	NR	585	250340	NR	715	24401	NR	845	5548	NR	975	9700	NR
460	209272	NR	590	252316	NR	720	21810	NR	850	5560	NR	980	8916	NR
465	162456	NR	595	253019	NR	725	19005	NR	855	6972	NR	985	9548	NR
470	132627	NR	600	252244	NR	730	17009	NR	860	8311	NR	990	10271	NR
475	106283	NR	605	246798	NR	735	14940	NR	865	6330	NR	995	7323	NR
480	91347	NR	610	238764	NR	740	13159	NR	870	8019	NR	1000	8719	NR
485	91575	NR	615	229100	NR	745	12000	NR	875	7419	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 10357.9 M/P: 0.71

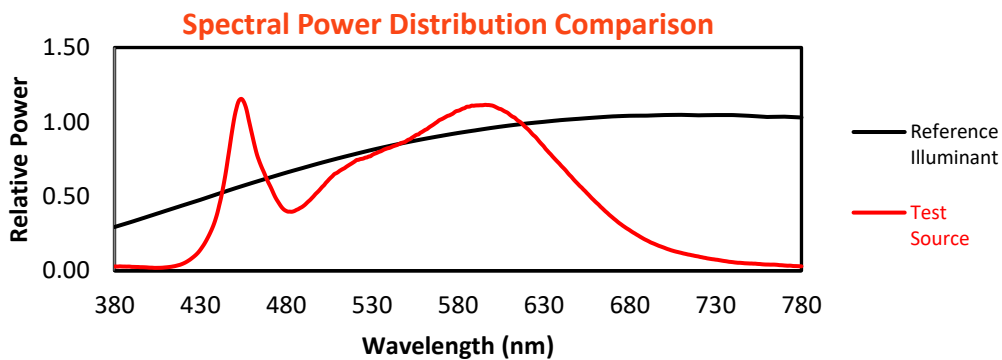
λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	6853	NR	490	98921	NR	620	217813	NR	750	11077	NR	880	7212	NR
365	5941	NR	495	111249	NR	625	204757	NR	755	10374	NR	885	8336	NR
370	6345	NR	500	125186	NR	630	189812	NR	760	9527	NR	890	8299	NR
375	7044	NR	505	139782	NR	635	174714	NR	765	9227	NR	895	8295	NR
380	6587	NR	510	150374	NR	640	160641	NR	770	8071	NR	900	5725	NR
385	6443	NR	515	158837	NR	645	146146	NR	775	7303	NR	905	5085	NR
390	5977	NR	520	167163	NR	650	132087	NR	780	6839	NR	910	6133	NR
395	5473	NR	525	171514	NR	655	118817	NR	785	5988	NR	915	6429	NR
400	4874	NR	530	176783	NR	660	105411	NR	790	5761	NR	920	7354	NR
405	4470	NR	535	182412	NR	665	92911	NR	795	6396	NR	925	6889	NR
410	5232	NR	540	187578	NR	670	81240	NR	800	6049	NR	930	7465	NR
415	7030	NR	545	192635	NR	675	70762	NR	805	5748	NR	935	9430	NR
420	11074	NR	550	198282	NR	680	61913	NR	810	5571	NR	940	6867	NR
425	19121	NR	555	206255	NR	685	53742	NR	815	5977	NR	945	7026	NR
430	32148	NR	560	213621	NR	690	46348	NR	820	6580	NR	950	9476	NR
435	54073	NR	565	222021	NR	695	40313	NR	825	6610	NR	955	8237	NR
440	89242	NR	570	230974	NR	700	35240	NR	830	6652	NR	960	7127	NR
445	153497	NR	575	237268	NR	705	30635	NR	835	5919	NR	965	5614	NR
450	236793	NR	580	244317	NR	710	27359	NR	840	5707	NR	970	9396	NR
455	259282	NR	585	250340	NR	715	24401	NR	845	5548	NR	975	9700	NR
460	209272	NR	590	252316	NR	720	21810	NR	850	5560	NR	980	8916	NR
465	162456	NR	595	253019	NR	725	19005	NR	855	6972	NR	985	9548	NR
470	132627	NR	600	252244	NR	730	17009	NR	860	8311	NR	990	10271	NR
475	106283	NR	605	246798	NR	735	14940	NR	865	6330	NR	995	7323	NR
480	91347	NR	610	238764	NR	740	13159	NR	870	8019	NR	1000	8719	NR
485	91575	NR	615	229100	NR	745	12000	NR	875	7419	NR			

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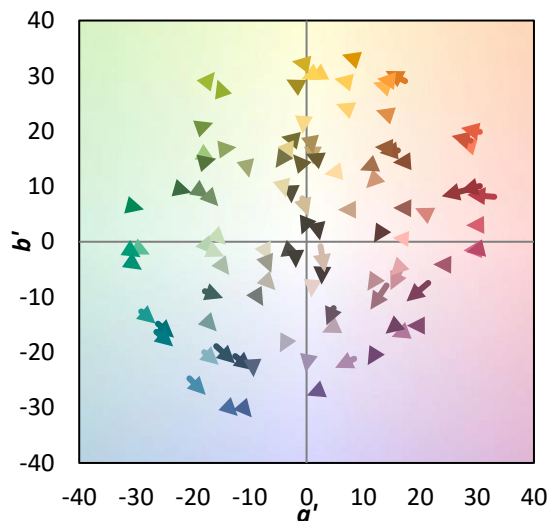
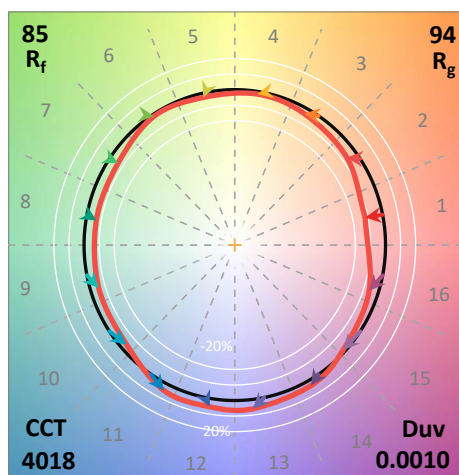
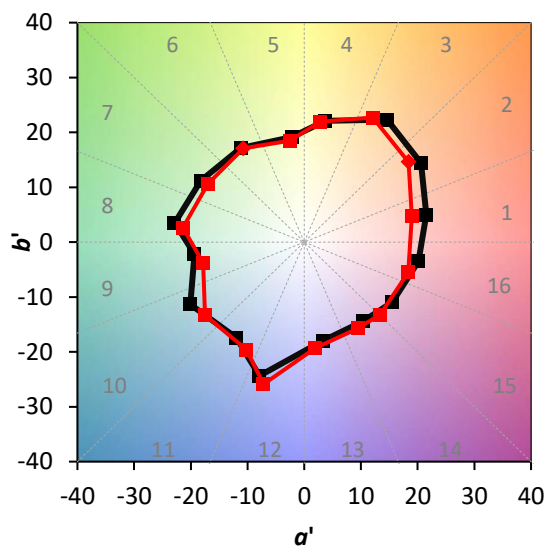
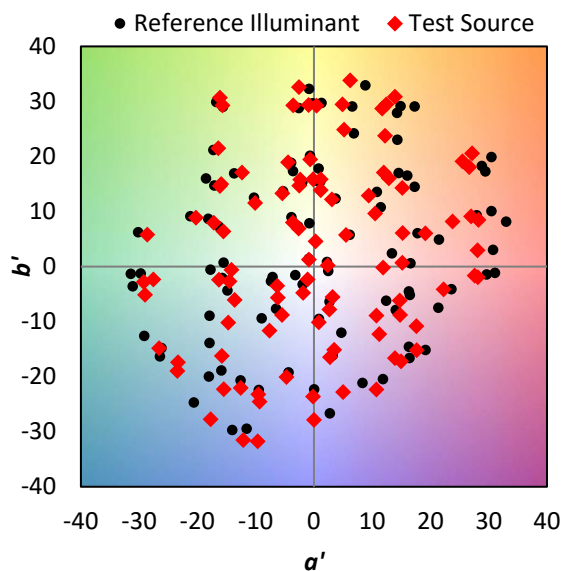
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Summary

$R_f = 84.5$
 $R_g = 93.7$
 CIE $R_a = 84.0$
 $R_9 = 11.5$



Color Vector Graphics

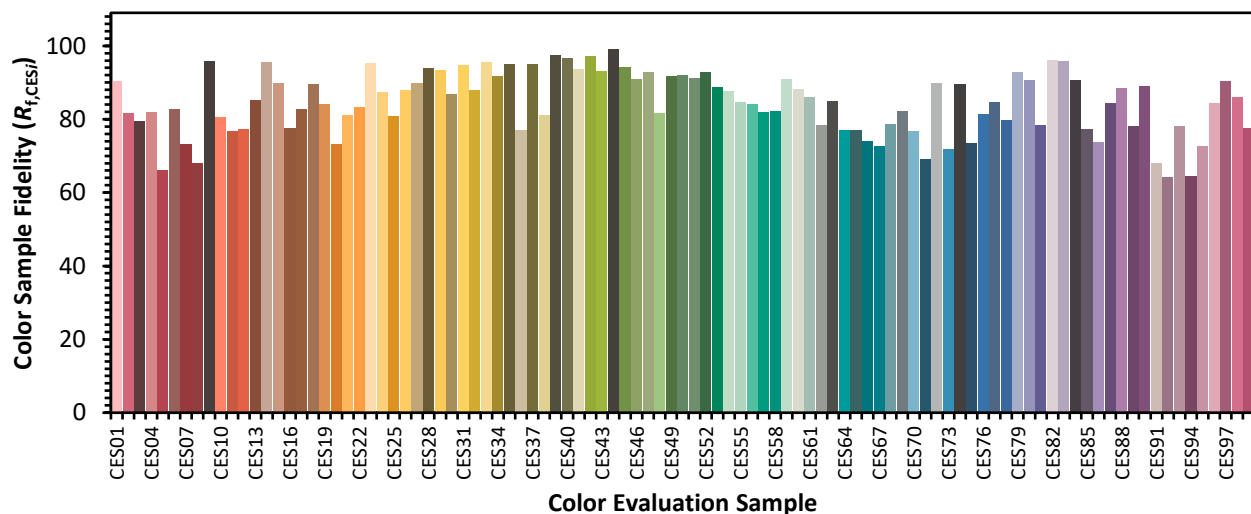


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Individual Sample Fidelity Index ($R_{f,i}$)

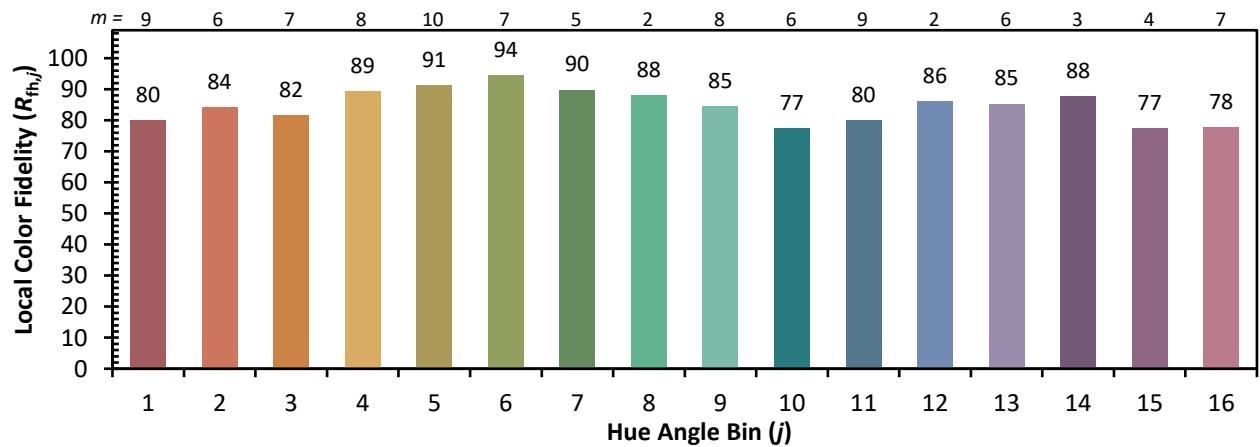
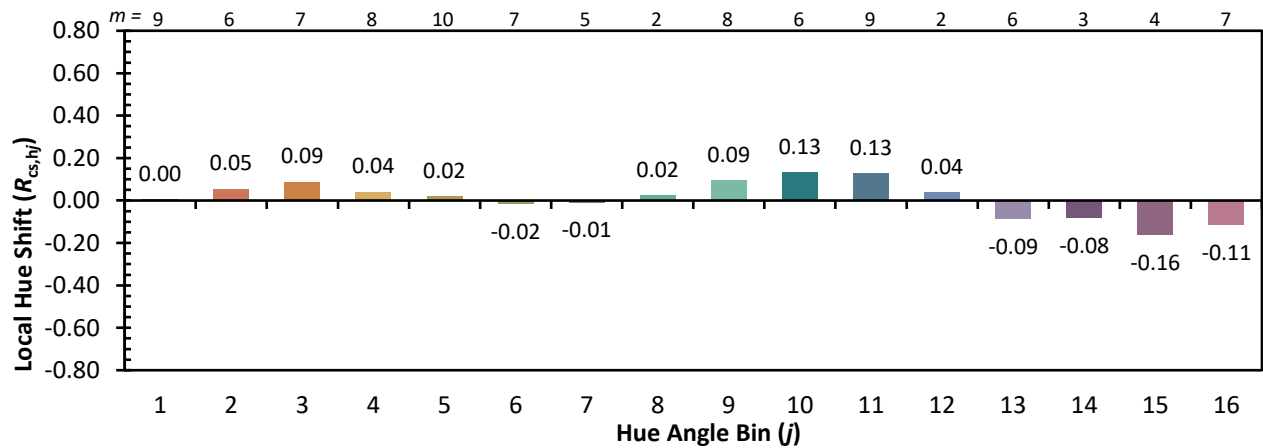
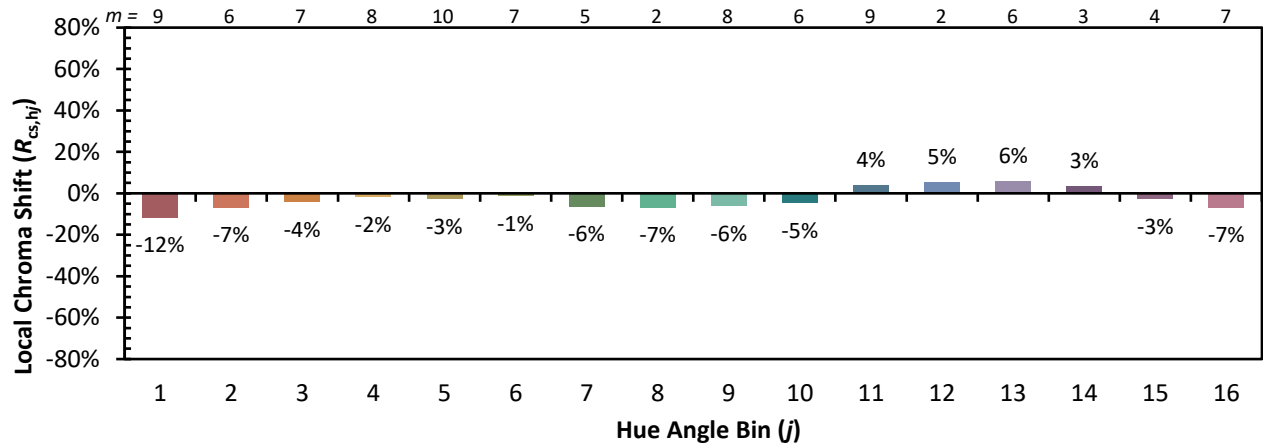
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CES02 = 61	CES27 = 90	CES52 = 93	CES77 = 85
CES03 = 31	CES28 = 94	CES53 = 89	CES78 = 80
CES04 = 69	CES29 = 93	CES54 = 88	CES79 = 93
CES05 = 48	CES30 = 87	CES55 = 85	CES80 = 91
CES06 = 50	CES31 = 95	CES56 = 84	CES81 = 78
CES07 = 41	CES32 = 88	CES57 = 82	CES82 = 96
CES08 = 40	CES33 = 96	CES58 = 82	CES83 = 96
CES09 = 29	CES34 = 92	CES59 = 91	CES84 = 91
CES10 = 74	CES35 = 95	CES60 = 88	CES85 = 77
CES11 = 57	CES36 = 77	CES61 = 86	CES86 = 74
CES12 = 63	CES37 = 95	CES62 = 78	CES87 = 84
CES13 = 42	CES38 = 81	CES63 = 85	CES88 = 88
CES14 = 74	CES39 = 98	CES64 = 77	CES89 = 78
CES15 = 71	CES40 = 97	CES65 = 77	CES90 = 89
CES16 = 47	CES41 = 94	CES66 = 74	CES91 = 68
CES17 = 49	CES42 = 97	CES67 = 73	CES92 = 64
CES18 = 56	CES43 = 93	CES68 = 79	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 82	CES94 = 65
CES20 = 65	CES45 = 94	CES70 = 77	CES95 = 73
CES21 = 86	CES46 = 91	CES71 = 69	CES96 = 84
CES22 = 78	CES47 = 93	CES72 = 90	CES97 = 90
CES23 = 91	CES48 = 82	CES73 = 72	CES98 = 86
CES24 = 90	CES49 = 92	CES74 = 90	CES99 = 77
CES25 = 71	CES50 = 92	CES75 = 74	



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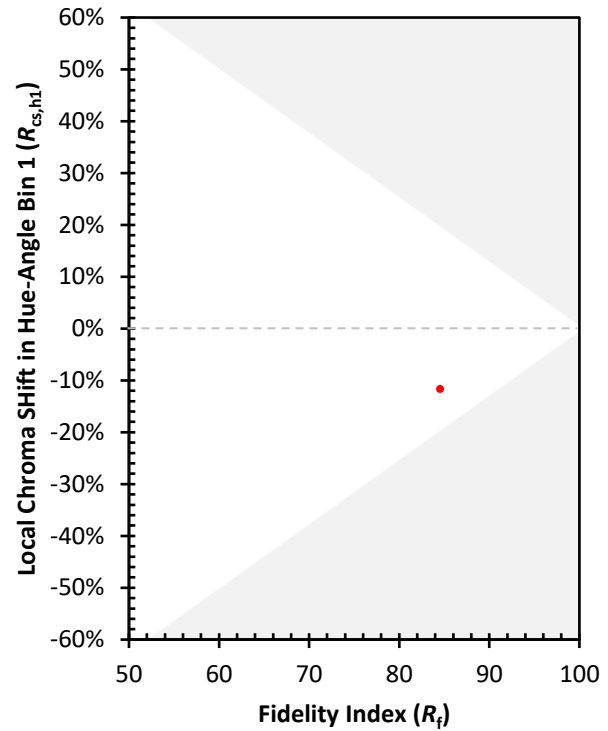
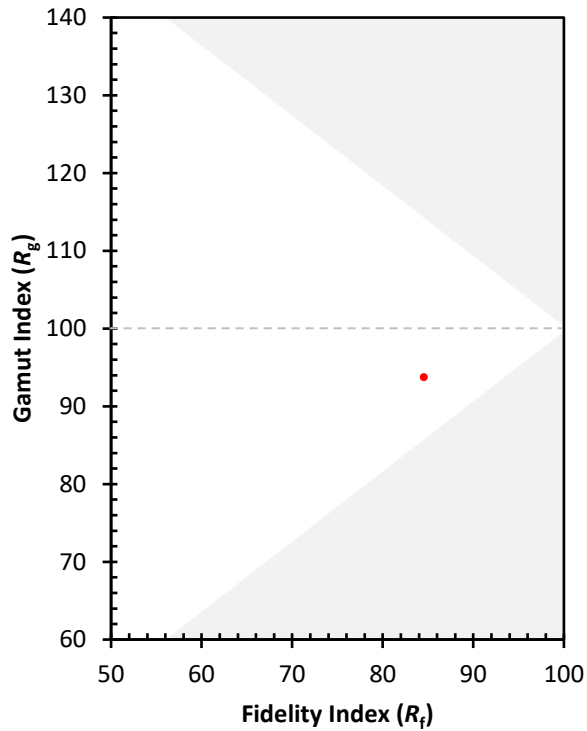
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)