

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: P826507

Luminaire Tested: **OHBL-18HE-W-UNV-L830-CD-UPL18**

Issue Date: 5/3/2024



Test Information

Test Method: LM-79-08
Report Number: P826507
REPORT IS A COMBINATION OF REPORTS P826160 AND G3-2310-221-8
Test Lab: INNOVATION CENTER
Issue Date: 5/3/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: OHBL-18HE-W-UNV-L830-CD-UPL18
Description:
Light Source: -
Ballast/Driver: -

Summary

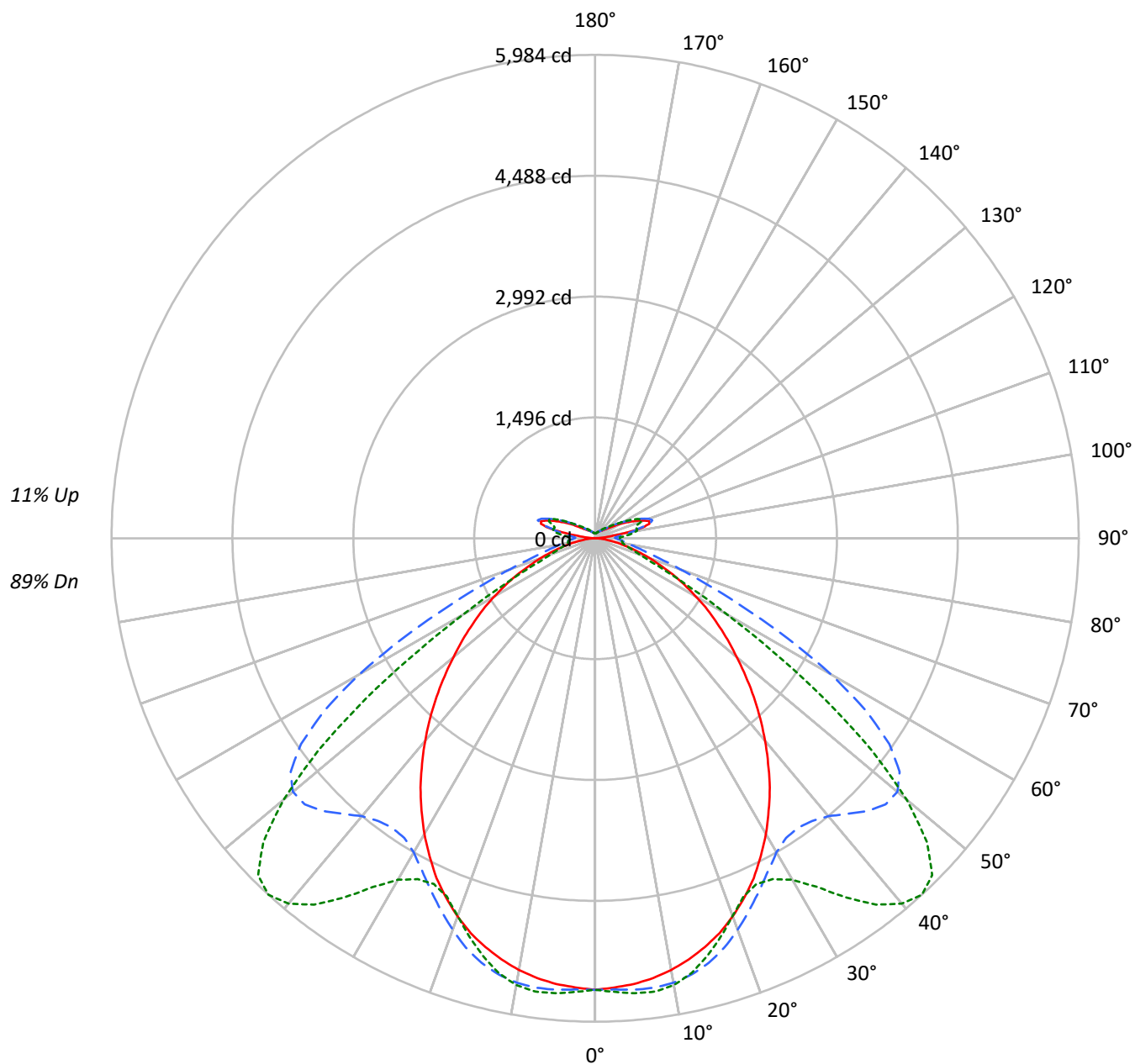
Lumens per Lamp: N/A
Luminaire Lumens: 18400.7 lumens
Efficiency: N/A
Efficacy: 159.6 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.58 / 1.62
Luminous Opening: Rectangular w/ Sides (W: 3.78' x L: 1.67' x H: 0.17')
CIE Type: Semi-Direct

Input Watts (W): 115.3
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: P826507

CATALOG NUMBER: OHBL-18HE-W-UNV-L830-CD-UPL18

Luminous Intensity Polar Plot





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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
RCR																	
0	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92
1	107	102	98	94	103	99	95	92	93	90	87	87	85	82	82	80	78
2	97	89	83	77	94	87	81	76	81	76	72	76	72	69	72	69	66
3	89	79	71	65	85	76	69	63	72	66	61	68	63	58	64	60	56
4	81	70	61	55	78	68	60	54	64	57	52	60	54	50	57	52	48
5	75	62	53	47	72	60	52	46	57	50	44	54	48	43	51	46	42
6	69	56	47	41	66	54	46	40	51	44	39	48	42	38	46	41	36
7	63	50	42	36	61	49	41	35	46	39	34	44	38	33	42	36	32
8	59	46	37	31	57	44	37	31	42	35	30	40	34	29	38	33	29
9	55	42	34	28	53	41	33	28	39	32	27	37	31	26	35	30	26
10	51	38	31	25	50	37	30	25	36	29	24	34	28	24	33	27	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	9546	9546	9546
5°	9412	9533	9655
10°	9248	9518	9666
15°	9023	9361	9357
20°	8732	9039	8898
25°	8359	8650	8720
30°	7881	8360	9384
35°	7343	8514	10981
40°	6730	9221	12694
45°	6093	10460	13645
50°	5434	11566	12698
55°	4814	11551	9702
60°	4185	9772	5932
65°	3527	6747	3593
70°	2797	4362	2594
75°	2051	3125	2405
80°	1384	2744	2714
85°	827	3014	4290



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	534.1	2.9
10°-20°	1512.4	8.2
20°-30°	2213.2	12.0
30°-40°	2874.3	15.6
40°-50°	3509.9	19.1
50°-60°	3091.0	16.8
60°-70°	1610.8	8.8
70°-80°	690.7	3.8
80°-90°	335.9	1.8
90°-100°	315.2	1.7
100°-110°	650.2	3.5
110°-120°	532.7	2.9
120°-130°	259.4	1.4
130°-140°	129.7	0.7
140°-150°	73.7	0.4
150°-160°	41.3	0.2
160°-170°	20.0	0.1
170°-180°	6.1	0.0
0°-30°	4259.8	23.2
0°-40°	7134.1	38.8
0°-60°	13735.0	74.6
0°-90°	16372.4	89.0
90°-120°	1498.1	8.1
90°-150°	1960.9	10.7
90°-180°	2028.0	11.0
0°-180°	18400.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5589	5589	5589	5589	5589	
5°	5537	5580	5610	5659	5653	525
15°	5240	5387	5438	5398	5354	1475
25°	4643	4891	4808	4717	4722	2131
35°	3768	4166	4375	5102	5429	2349
45°	2775	3491	4772	5777	5898	2139
55°	1847	3058	4444	3896	3463	1658
65°	1060	2119	2034	1131	973	1049
75°	427	991	654	447	424	465
85°	90	353	333	326	329	101
90°	5	151	251	293	303	9
95°	38	151	295	360	389	113
105°	694	725	696	547	517	659
115°	485	507	552	562	564	489
125°	241	256	291	302	302	226
135°	145	148	164	180	182	115
145°	110	110	114	122	124	69
155°	90	92	90	91	91	41
165°	69	70	70	71	71	20
175°	62	62	63	63	63	6
180°	62	62	62	62	62	



TEST NUMBER: P826507

CATALOG NUMBER: OHBL-18HE-W-UNV-L830-CD-UPL18

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5589.2	5589.2	5589.2	5589.2	5589.2
2.5°	5565.1	5589.2	5590.4	5624.2	5620.6
5°	5537.4	5579.6	5609.8	5659.2	5653.1
7.5°	5491.6	5557.8	5611.0	5665.2	5660.4
10°	5426.4	5516.9	5586.8	5631.4	5616.9
12.5°	5342.0	5461.4	5530.1	5539.8	5512.1
15°	5239.5	5386.6	5438.4	5397.5	5354.0
17.5°	5123.7	5296.2	5314.3	5225.1	5170.8
20°	4979.0	5175.6	5157.5	5034.5	4974.2
22.5°	4818.7	5043.0	4985.1	4856.0	4798.1
25°	4642.6	4891.0	4807.8	4717.4	4722.2
27.5°	4436.4	4718.6	4637.8	4678.8	4756.0
30°	4226.6	4537.7	4488.3	4727.0	4879.0
32.5°	3996.3	4352.0	4396.6	4868.1	5116.5
35°	3768.4	4166.3	4374.9	5102.0	5428.9
37.5°	3516.3	3978.2	4409.9	5372.2	5714.6
40°	3271.6	3794.9	4489.5	5614.5	5903.9
42.5°	3021.9	3630.8	4623.3	5758.0	5983.6
45°	2774.7	3491.0	4771.6	5777.4	5898.0
47.5°	2527.5	3372.8	4874.2	5624.2	5568.7
50°	2288.7	3267.9	4881.4	5256.4	5029.7
52.5°	2065.6	3171.4	4748.7	4670.4	4318.2
55°	1847.4	3058.1	4443.7	3896.1	3463.2
57.5°	1648.4	2901.3	3973.4	3064.1	2591.4
60°	1437.4	2689.1	3365.6	2241.7	1869.1
62.5°	1243.2	2425.0	2684.3	1560.4	1343.4
65°	1060.0	2118.7	2034.3	1131.1	973.2
67.5°	865.8	1801.6	1501.4	824.8	723.5
70°	713.9	1507.3	1117.9	641.5	582.4
72.5°	558.3	1227.6	835.6	520.9	488.4
75°	426.8	991.2	653.6	447.4	424.4
77.5°	314.7	783.8	525.8	395.5	373.8
80°	220.6	617.4	440.2	353.3	344.9
82.5°	148.3	477.6	375.0	336.4	337.6
85°	90.4	353.3	332.9	325.6	329.2
87.5°	43.5	250.8	285.8	296.7	300.3
90°	4.9	151.1	251.1	292.7	303.4
92.5°	12.1	128.4	244.1	295.0	308.5
95°	37.8	151.0	294.9	360.4	388.8
97.5°	183.9	259.7	378.3	450.6	469.0
100°	377.7	445.7	469.3	515.2	524.5
102.5°	588.9	631.4	547.9	533.5	530.3
105°	694.4	725.3	695.9	546.6	517.4



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CATALOG NUMBER: OHBL-18HE-W-UNV-L830-CD-UPL18

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.5	592.9	632.3	634.4	613.5
115°	484.6	507.1	552.0	562.1	563.5
117.5°	415.1	431.1	472.8	485.4	487.5
120°	348.1	364.2	402.9	414.7	414.0
122.5°	292.3	306.7	343.8	354.4	353.7
125°	241.1	255.9	291.4	302.4	301.8
127.5°	204.5	214.1	249.0	260.1	259.4
130°	178.5	185.0	212.3	225.3	228.6
132.5°	160.8	163.6	186.0	199.0	203.3
135°	145.0	147.8	164.4	179.6	181.7
137.5°	132.9	135.7	147.8	161.7	165.1
140°	122.6	125.4	133.1	146.9	149.1
142.5°	115.5	117.1	123.5	134.0	136.1
145°	110.2	109.6	113.6	121.7	124.1
147.5°	103.7	104.3	106.2	112.9	114.1
150°	98.1	99.9	99.4	102.7	106.1
152.5°	94.4	95.3	94.7	95.7	98.1
155°	89.7	91.6	90.1	91.0	91.0
157.5°	77.2	78.2	79.1	80.0	80.0
160°	74.4	74.4	75.4	76.3	76.3
162.5°	71.7	71.7	72.6	73.5	73.5
165°	68.9	69.8	69.8	70.7	70.7
167.5°	67.0	67.0	67.9	67.9	68.9
170°	65.1	65.1	66.1	66.1	66.1
172.5°	63.3	64.2	64.2	64.2	64.2
175°	62.3	62.3	63.3	63.3	63.3
177.5°	61.4	62.3	62.3	62.3	62.3
180°	62.3	62.3	62.3	62.3	62.3



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - 90°-270°







107.5°	702.1	733.5	743.4	620.6	542.0
110°	643.5	677.4	706.2	669.6	607.8



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

Report Prepared for

Cooper Lighting Solutions

METALUX

Report Number: SP1-2307-100-4

Test Date: 07/27/2023

Luminaire Tested: OHB-15SE-N-UNV-L830-CD

Data in this report applies to families of products including OHB-15SE-N-UNV-L830-CD.

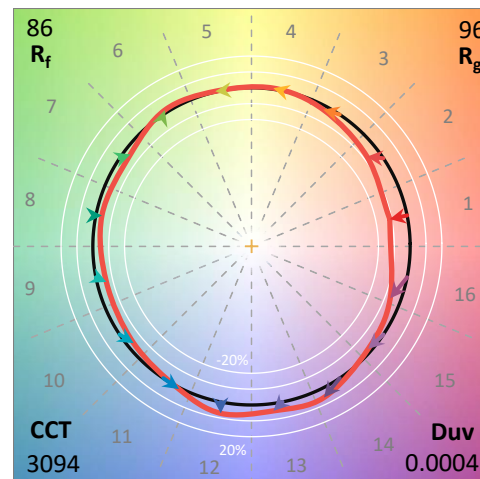
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2307-100-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/04/2023
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: METALUX
 Catalog Number: **OHB-15SE-N-UNV-L830-CD**
 Description: 15000 LUMEN OHB SE LED LUMINAIRE WITH 80CRI, 3000K LEDS AND NARROW LENS

LENS

Spectral Parameters

CCT (K):	3094	CRI (Ra):	83.1		
CIE u':	0.2471	R1:	81.4	R9:	8.0
CIE v':	0.5200	R2:	91.2	R10:	80.2
Duv:	0.0004	R3:	96.3	R11:	80.9
CIE x:	0.4308	R4:	81.2	R12:	72.3
CIE y:	0.4028	R5:	81.8	R13:	83.8
CIE z:	0.1664	R6:	89.5	R14:	98.6
Peak Wavelength (nm):	601	R7:	83.2		
Dominant Wavelength (nm):	582	R8:	59.8		
Purity:	50.4				
Rf:	85.5				
Rg:	95.7				



Test Conditions

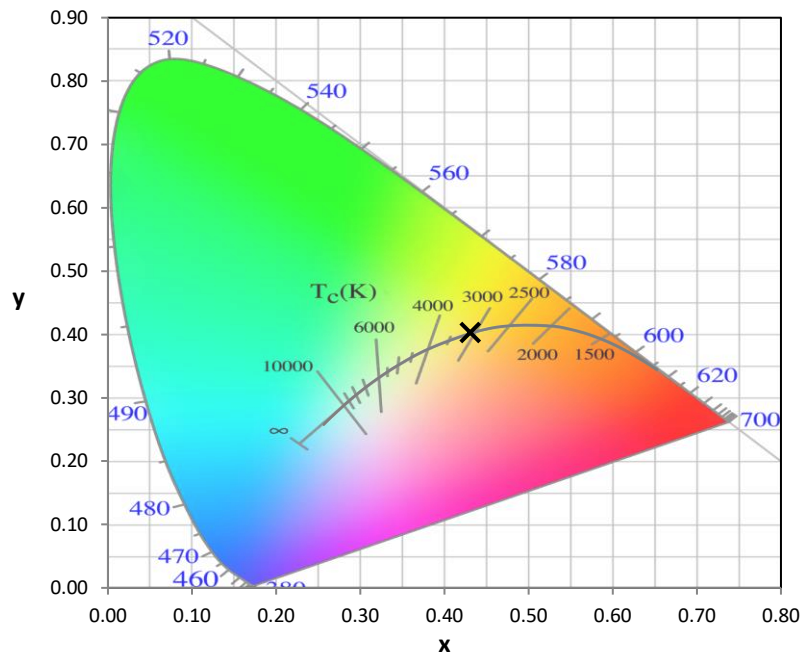
Stabilization Time: 23M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.7/57%
 Sphere Temperature (°C): 25.2

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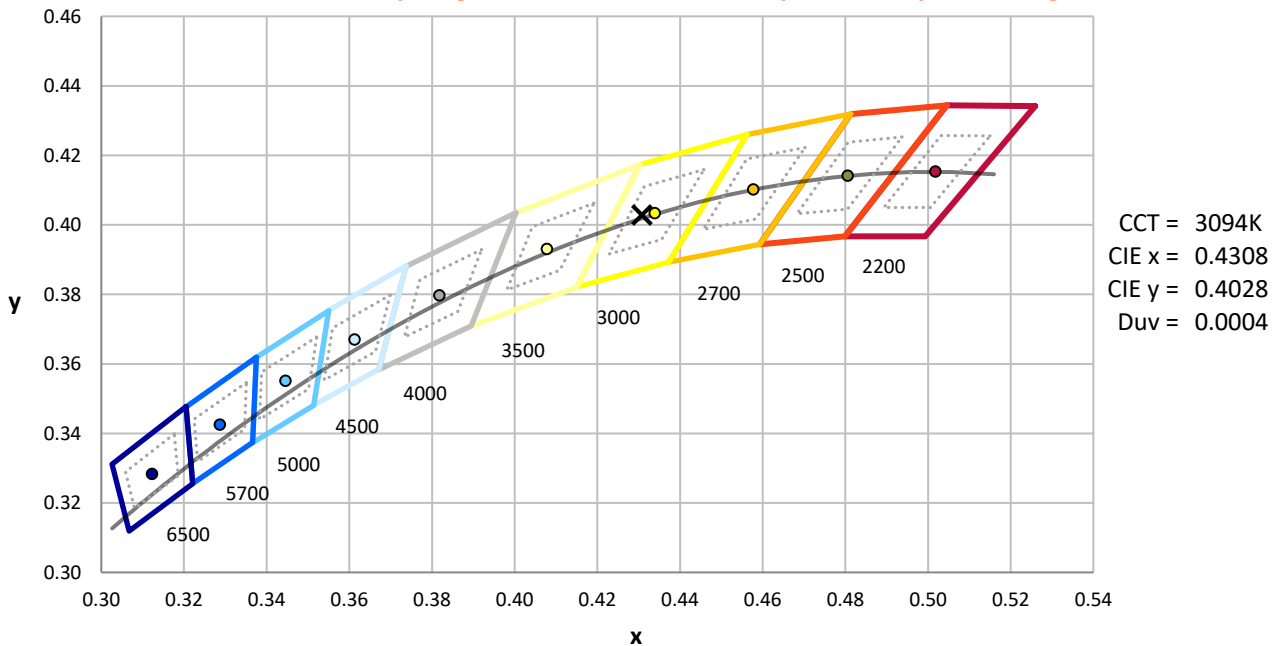
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	2/9/2023	8/9/2023
Power Meter	XITRON 2801 IN0071	11/29/2022	11/29/2023
AC Power Source	CHROMA 61603 IN0063	11/28/2022	11/28/2023
DC Power Source	AGILENT E3634A IN0208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



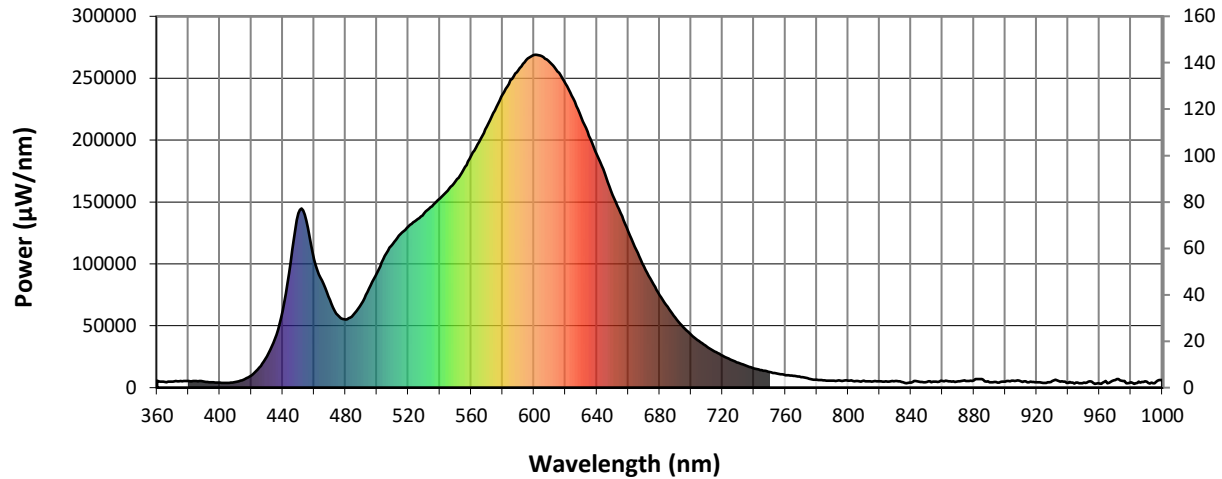
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

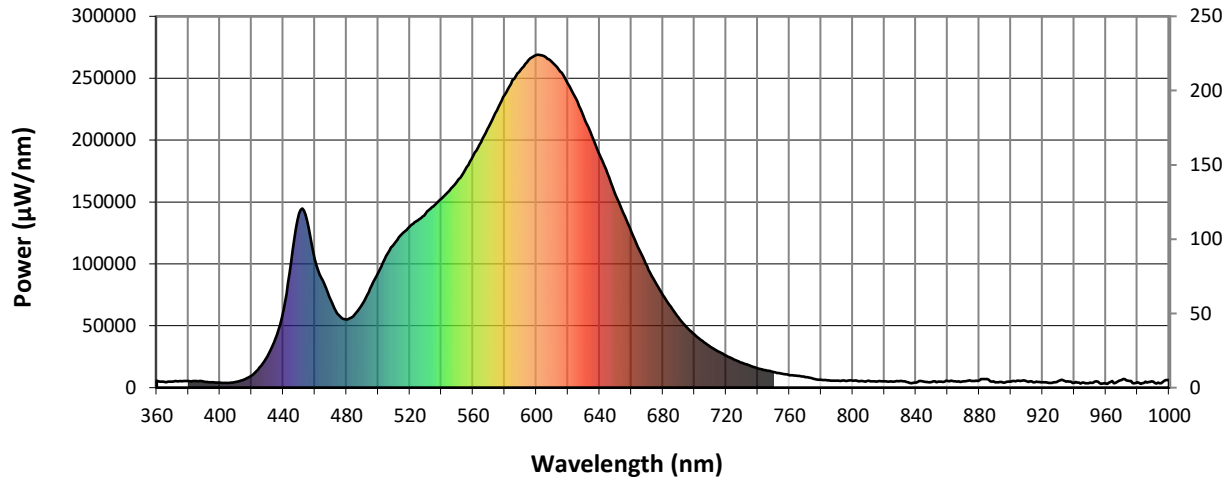


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λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	5588	NR	490	67760	NR	620	245592	NR	750	12500	NR	880	5775	NR
365	4653	NR	495	80150	NR	625	233690	NR	755	11226	NR	885	6968	NR
370	4816	NR	500	92862	NR	630	218514	NR	760	10108	NR	890	4448	NR
375	5382	NR	505	106466	NR	635	203332	NR	765	9635	NR	895	3971	NR
380	5471	NR	510	115999	NR	640	188047	NR	770	8591	NR	900	4881	NR
385	5274	NR	515	124150	NR	645	172926	NR	775	7303	NR	905	5743	NR
390	4889	NR	520	130163	NR	650	155620	NR	780	6289	NR	910	5113	NR
395	4299	NR	525	135224	NR	655	141125	NR	785	5911	NR	915	4407	NR
400	4023	NR	530	140755	NR	660	126216	NR	790	5635	NR	920	4245	NR
405	3768	NR	535	146504	NR	665	111397	NR	795	5646	NR	925	3908	NR
410	4601	NR	540	152733	NR	670	97878	NR	800	5673	NR	930	5417	NR
415	6365	NR	545	159328	NR	675	85741	NR	805	5281	NR	935	4964	NR
420	9813	NR	550	166801	NR	680	74760	NR	810	5525	NR	940	3949	NR
425	16211	NR	555	175954	NR	685	65227	NR	815	4927	NR	945	4140	NR
430	25392	NR	560	187354	NR	690	56436	NR	820	5126	NR	950	3965	NR
435	39464	NR	565	198482	NR	695	48938	NR	825	4905	NR	955	4799	NR
440	61997	NR	570	210996	NR	700	42760	NR	830	5269	NR	960	3231	NR
445	101388	NR	575	223758	NR	705	37659	NR	835	4331	NR	965	3690	NR
450	140880	NR	580	236632	NR	710	33026	NR	840	4092	NR	970	6116	NR
455	134821	NR	585	248639	NR	715	29202	NR	845	4761	NR	975	5312	NR
460	103575	NR	590	256555	NR	720	25763	NR	850	4730	NR	980	4400	NR
465	86441	NR	595	264551	NR	725	22755	NR	855	4934	NR	985	4764	NR
470	70678	NR	600	268886	NR	730	20059	NR	860	5495	NR	990	4803	NR
475	58575	NR	605	267857	NR	735	17717	NR	865	5241	NR	995	3507	NR
480	55102	NR	610	262898	NR	740	15495	NR	870	5223	NR	1000	6247	NR
485	58801	NR	615	255346	NR	745	14094	NR	875	5501	NR			

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Scotopic Flux vs. Wavelength



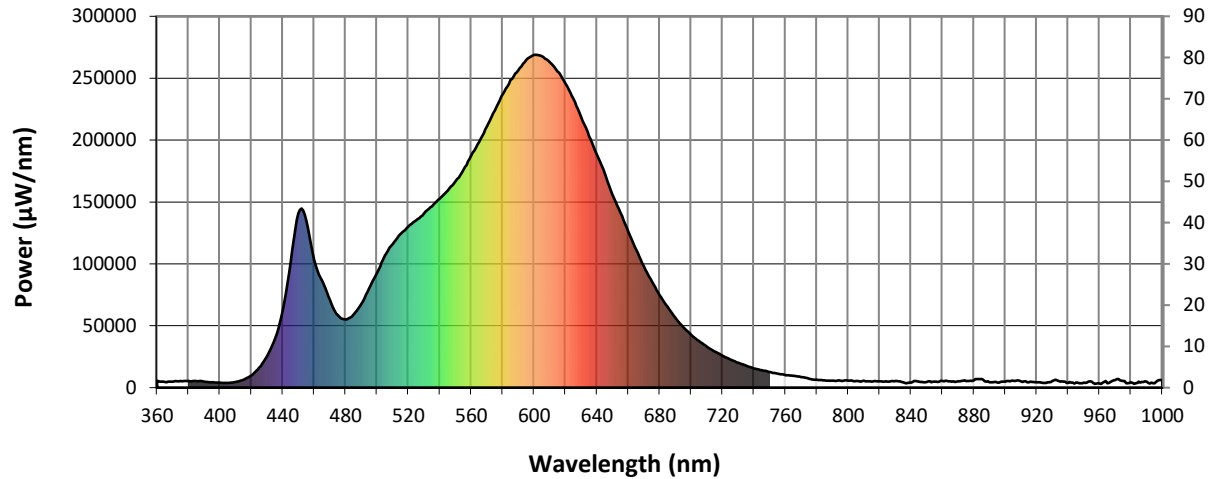
Scotopic Lumens: 18580

S/P: 1.39

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	5588	NR	490	67760	NR	620	245592	NR	750	12500	NR	880	5775	NR
365	4653	NR	495	80150	NR	625	233690	NR	755	11226	NR	885	6968	NR
370	4816	NR	500	92862	NR	630	218514	NR	760	10108	NR	890	4448	NR
375	5382	NR	505	106466	NR	635	203332	NR	765	9635	NR	895	3971	NR
380	5471	NR	510	115999	NR	640	188047	NR	770	8591	NR	900	4881	NR
385	5274	NR	515	124150	NR	645	172926	NR	775	7303	NR	905	5743	NR
390	4889	NR	520	130163	NR	650	155620	NR	780	6289	NR	910	5113	NR
395	4299	NR	525	135224	NR	655	141125	NR	785	5911	NR	915	4407	NR
400	4023	NR	530	140755	NR	660	126216	NR	790	5635	NR	920	4245	NR
405	3768	NR	535	146504	NR	665	111397	NR	795	5646	NR	925	3908	NR
410	4601	NR	540	152733	NR	670	97878	NR	800	5673	NR	930	5417	NR
415	6365	NR	545	159328	NR	675	85741	NR	805	5281	NR	935	4964	NR
420	9813	NR	550	166801	NR	680	74760	NR	810	5525	NR	940	3949	NR
425	16211	NR	555	175954	NR	685	65227	NR	815	4927	NR	945	4140	NR
430	25392	NR	560	187354	NR	690	56436	NR	820	5126	NR	950	3965	NR
435	39464	NR	565	198482	NR	695	48938	NR	825	4905	NR	955	4799	NR
440	61997	NR	570	210996	NR	700	42760	NR	830	5269	NR	960	3231	NR
445	101388	NR	575	223758	NR	705	37659	NR	835	4331	NR	965	3690	NR
450	140880	NR	580	236632	NR	710	33026	NR	840	4092	NR	970	6116	NR
455	134821	NR	585	248639	NR	715	29202	NR	845	4761	NR	975	5312	NR
460	103575	NR	590	256555	NR	720	25763	NR	850	4730	NR	980	4400	NR
465	86441	NR	595	264551	NR	725	22755	NR	855	4934	NR	985	4764	NR
470	70678	NR	600	268886	NR	730	20059	NR	860	5495	NR	990	4803	NR
475	58575	NR	605	267857	NR	735	17717	NR	865	5241	NR	995	3507	NR
480	55102	NR	610	262898	NR	740	15495	NR	870	5223	NR	1000	6247	NR
485	58801	NR	615	255346	NR	745	14094	NR	875	5501	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 7125.5

M/P: 0.53

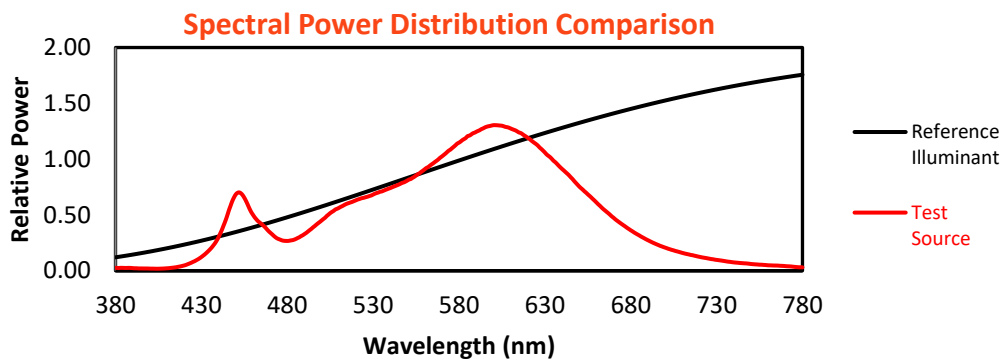
λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	5588	NR	490	67760	NR	620	245592	NR	750	12500	NR	880	5775	NR
365	4653	NR	495	80150	NR	625	233690	NR	755	11226	NR	885	6968	NR
370	4816	NR	500	92862	NR	630	218514	NR	760	10108	NR	890	4448	NR
375	5382	NR	505	106466	NR	635	203332	NR	765	9635	NR	895	3971	NR
380	5471	NR	510	115999	NR	640	188047	NR	770	8591	NR	900	4881	NR
385	5274	NR	515	124150	NR	645	172926	NR	775	7303	NR	905	5743	NR
390	4889	NR	520	130163	NR	650	155620	NR	780	6289	NR	910	5113	NR
395	4299	NR	525	135224	NR	655	141125	NR	785	5911	NR	915	4407	NR
400	4023	NR	530	140755	NR	660	126216	NR	790	5635	NR	920	4245	NR
405	3768	NR	535	146504	NR	665	111397	NR	795	5646	NR	925	3908	NR
410	4601	NR	540	152733	NR	670	97878	NR	800	5673	NR	930	5417	NR
415	6365	NR	545	159328	NR	675	85741	NR	805	5281	NR	935	4964	NR
420	9813	NR	550	166801	NR	680	74760	NR	810	5525	NR	940	3949	NR
425	16211	NR	555	175954	NR	685	65227	NR	815	4927	NR	945	4140	NR
430	25392	NR	560	187354	NR	690	56436	NR	820	5126	NR	950	3965	NR
435	39464	NR	565	198482	NR	695	48938	NR	825	4905	NR	955	4799	NR
440	61997	NR	570	210996	NR	700	42760	NR	830	5269	NR	960	3231	NR
445	101388	NR	575	223758	NR	705	37659	NR	835	4331	NR	965	3690	NR
450	140880	NR	580	236632	NR	710	33026	NR	840	4092	NR	970	6116	NR
455	134821	NR	585	248639	NR	715	29202	NR	845	4761	NR	975	5312	NR
460	103575	NR	590	256555	NR	720	25763	NR	850	4730	NR	980	4400	NR
465	86441	NR	595	264551	NR	725	22755	NR	855	4934	NR	985	4764	NR
470	70678	NR	600	268886	NR	730	20059	NR	860	5495	NR	990	4803	NR
475	58575	NR	605	267857	NR	735	17717	NR	865	5241	NR	995	3507	NR
480	55102	NR	610	262898	NR	740	15495	NR	870	5223	NR	1000	6247	NR
485	58801	NR	615	255346	NR	745	14094	NR	875	5501	NR			

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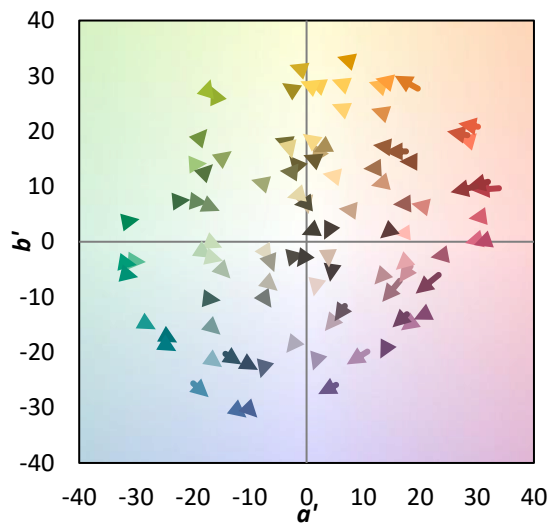
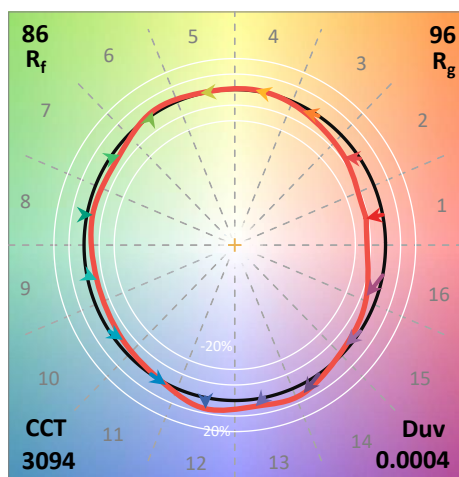
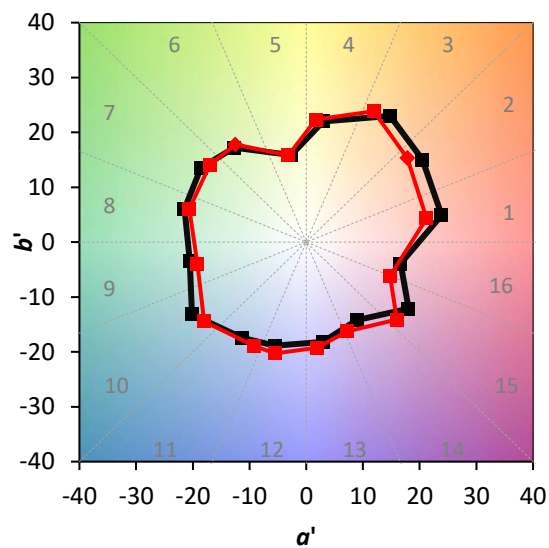
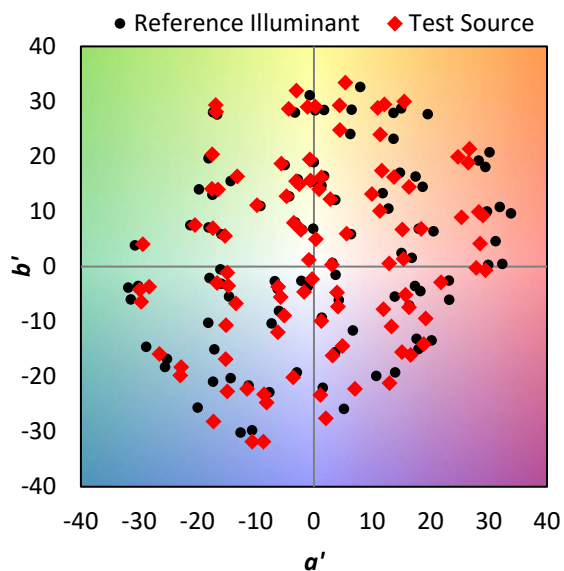
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Summary

$R_f = 85.5$
 $R_g = 95.7$
 $CIE R_a = 83.1$
 $R_9 = 8.0$



Color Vector Graphics

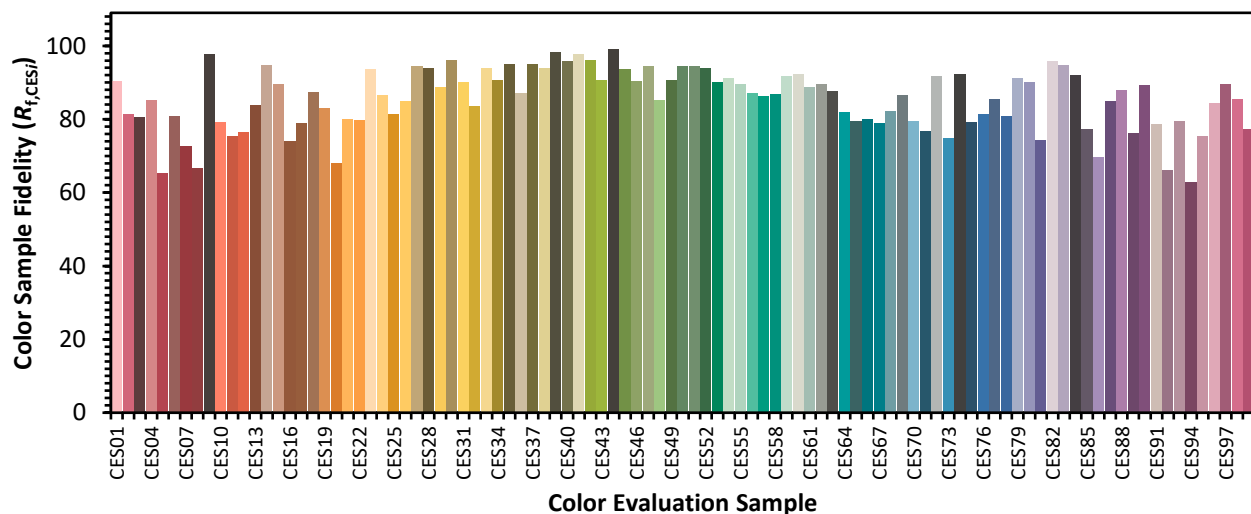


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Individual Sample Fidelity Index ($R_{f,i}$)

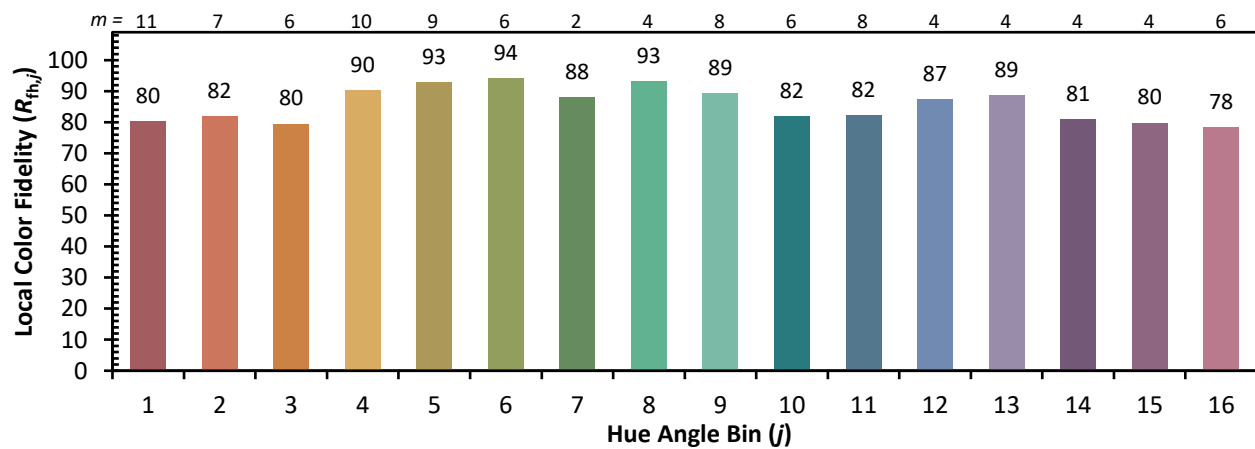
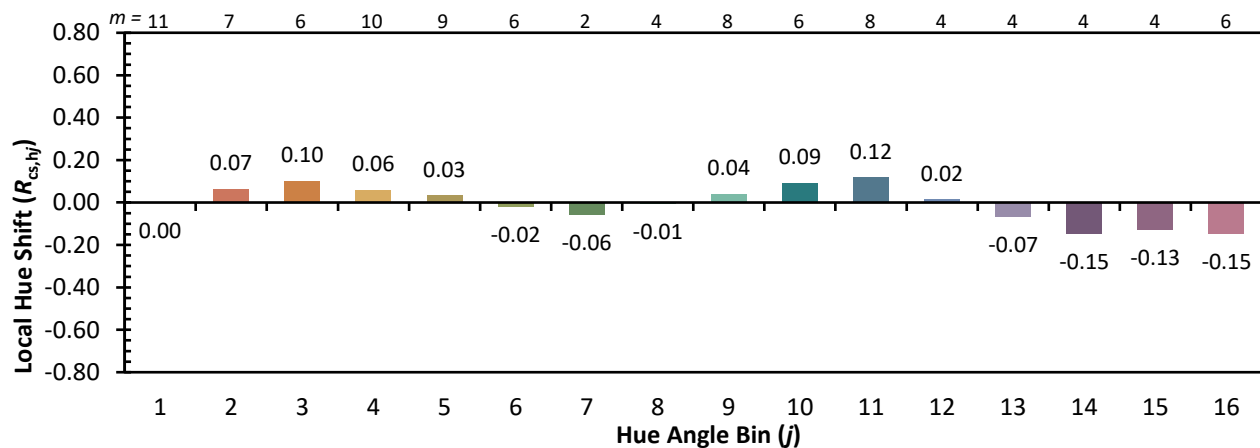
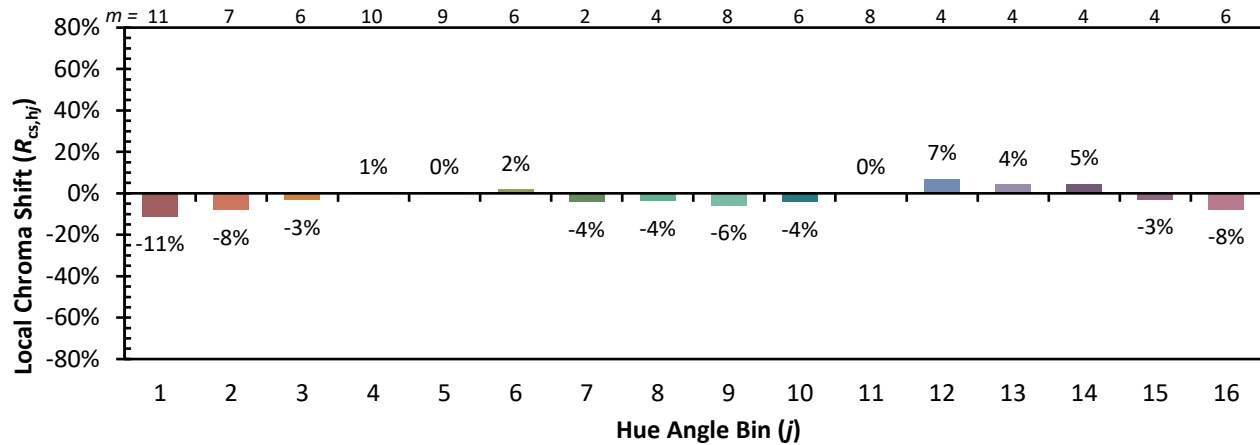
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CES02 = 63	CES27 = 94	CES52 = 94	CES77 = 85
CES03 = 31	CES28 = 94	CES53 = 90	CES78 = 81
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 91
CES05 = 49	CES30 = 96	CES55 = 90	CES80 = 90
CES06 = 51	CES31 = 90	CES56 = 87	CES81 = 74
CES07 = 42	CES32 = 83	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 94	CES58 = 87	CES83 = 95
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 95	CES60 = 92	CES85 = 77
CES11 = 59	CES36 = 87	CES61 = 89	CES86 = 70
CES12 = 65	CES37 = 95	CES62 = 90	CES87 = 85
CES13 = 43	CES38 = 94	CES63 = 88	CES88 = 88
CES14 = 74	CES39 = 98	CES64 = 82	CES89 = 76
CES15 = 71	CES40 = 96	CES65 = 80	CES90 = 89
CES16 = 47	CES41 = 98	CES66 = 80	CES91 = 79
CES17 = 50	CES42 = 96	CES67 = 79	CES92 = 66
CES18 = 56	CES43 = 91	CES68 = 82	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 87	CES94 = 63
CES20 = 66	CES45 = 94	CES70 = 79	CES95 = 75
CES21 = 87	CES46 = 91	CES71 = 77	CES96 = 84
CES22 = 79	CES47 = 94	CES72 = 92	CES97 = 90
CES23 = 92	CES48 = 85	CES73 = 75	CES98 = 86
CES24 = 91	CES49 = 91	CES74 = 92	CES99 = 77
CES25 = 72	CES50 = 95	CES75 = 79	



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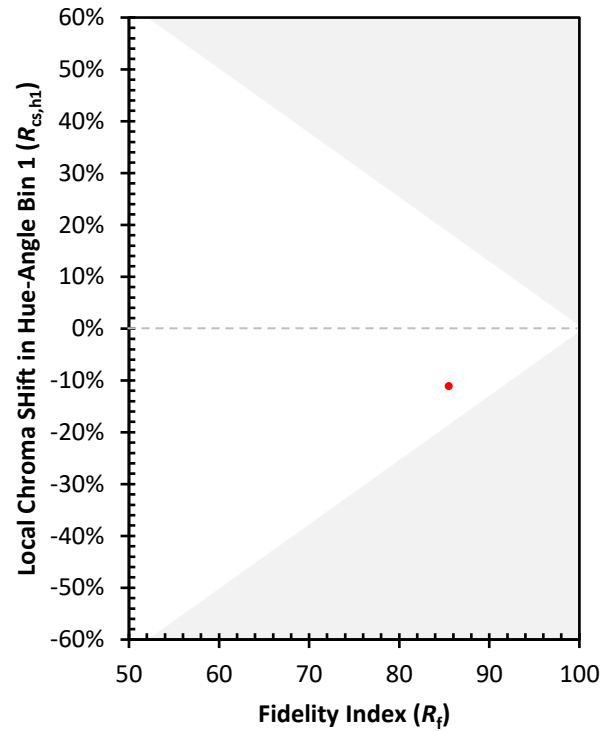
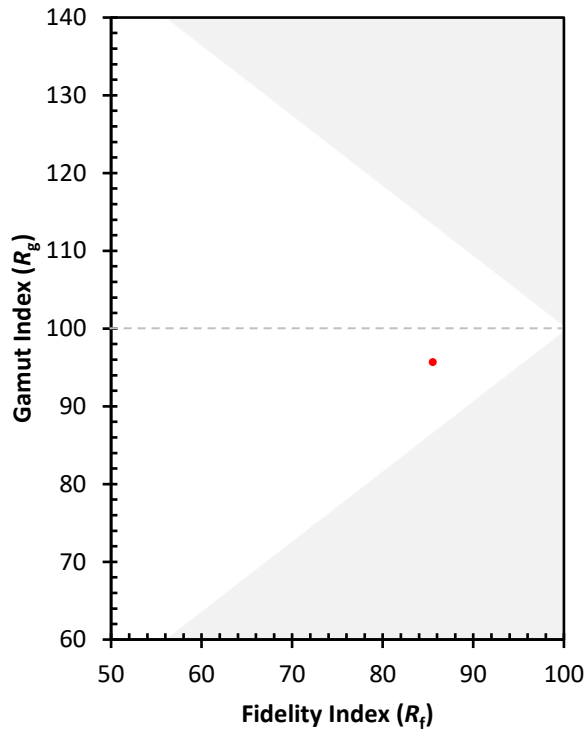
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)