

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: P828608

Luminaire Tested: **OHBL-18HE-W-UNV-L950-CD-UPL24**

Issue Date: 5/3/2024



Test Information

Test Method: LM-79-08
Report Number: P828608
REPORT IS A COMBINATION OF REPORTS P826232 AND G3-2310-221-6
Test Lab: INNOVATION CENTER
Issue Date: 5/3/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: OHBL-18HE-W-UNV-L950-CD-UPL24
Description:
Light Source: -
Ballast/Driver: -

Summary

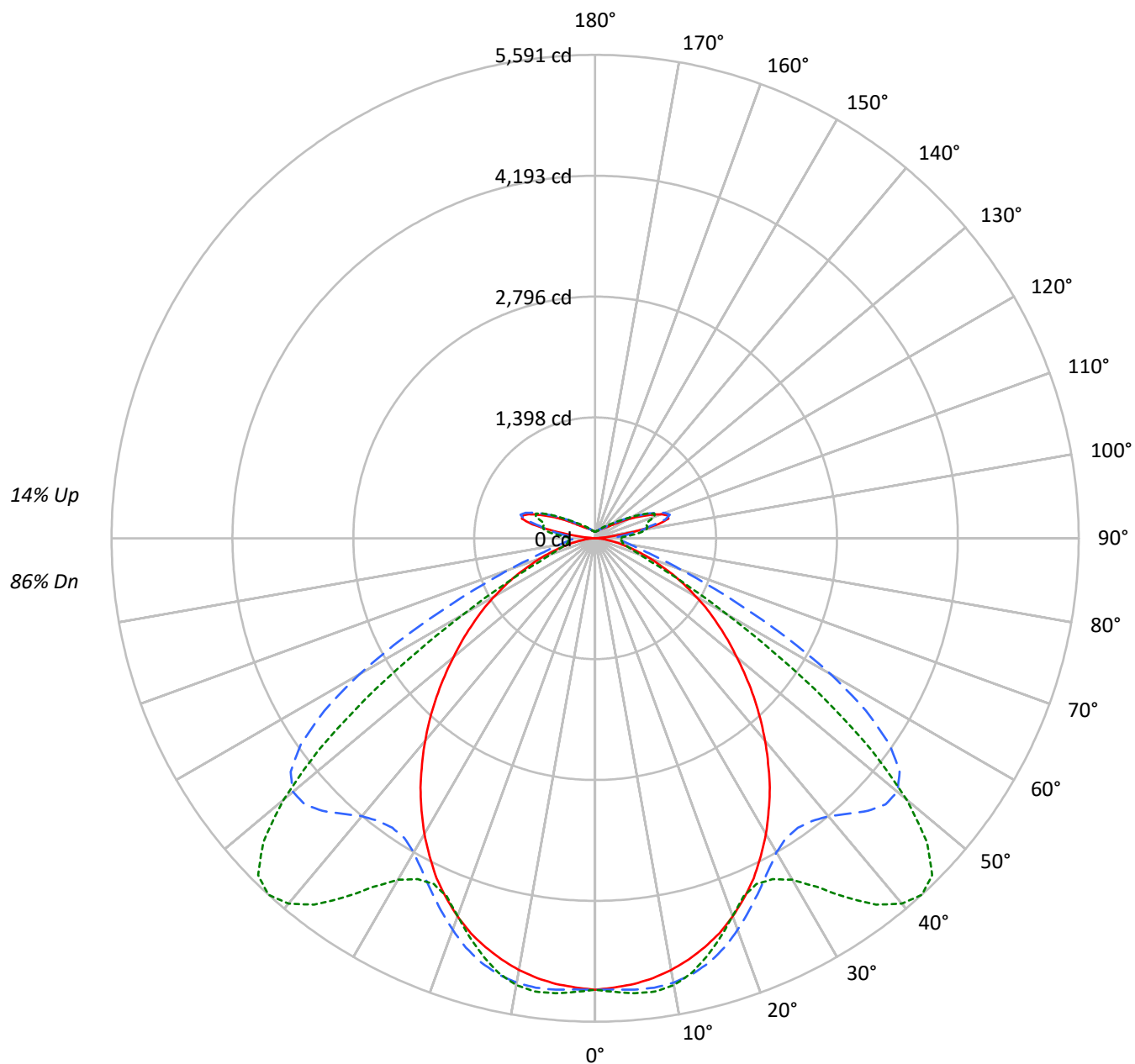
Lumens per Lamp: N/A
Luminaire Lumens: 17740.4 lumens
Efficiency: N/A
Efficacy: 147.3 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.58 / 1.62
Luminous Opening: Rectangular w/ Sides (W: 3.78' x L: 1.67' x H: 0.17')
CIE Type: Semi-Direct

Input Watts (W): 120.4
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: P828608

CATALOG NUMBER: OHBL-18HE-W-UNV-L950-CD-UPL24

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	50	30	10
RCR																				
0	116	116	116	116	111	111	111	111	103	103	103	96	96	96	89	89	89	86		
1	106	102	97	94	102	98	94	91	91	88	86	85	83	81	79	78	76	73		
2	97	89	82	77	93	86	80	75	80	75	71	75	71	68	70	67	64	61		
3	88	78	70	64	85	76	68	63	71	65	60	66	61	57	62	58	54	52		
4	81	69	61	54	77	67	59	53	63	56	51	59	53	49	55	51	47	44		
5	74	62	53	46	71	60	52	46	56	49	44	53	47	42	49	44	40	38		
6	68	55	47	40	65	54	45	40	50	43	38	47	41	37	45	39	35	33		
7	63	50	41	35	61	48	40	35	46	39	34	43	37	32	41	35	31	29		
8	59	45	37	31	56	44	36	31	42	35	30	39	33	29	37	32	28	26		
9	55	41	33	28	52	40	33	27	38	31	27	36	30	26	34	29	25	23		
10	51	38	30	25	49	37	30	25	35	29	24	33	27	23	32	26	23	21		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8919	8919	8919
5°	8793	8907	9021
10°	8641	8893	9032
15°	8430	8746	8742
20°	8158	8445	8314
25°	7810	8082	8147
30°	7363	7811	8767
35°	6861	7955	10259
40°	6288	8616	11860
45°	5693	9773	12749
50°	5077	10806	11863
55°	4498	10793	9065
60°	3910	9130	5542
65°	3296	6304	3357
70°	2613	4075	2424
75°	1916	2920	2247
80°	1293	2563	2535
85°	773	2815	4008



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	499.0	2.8
10°-20°	1413.1	8.0
20°-30°	2067.9	11.7
30°-40°	2685.6	15.1
40°-50°	3279.4	18.5
50°-60°	2888.0	16.3
60°-70°	1505.0	8.5
70°-80°	645.4	3.6
80°-90°	315.3	1.8
90°-100°	347.2	2.0
100°-110°	790.3	4.5
110°-120°	653.8	3.7
120°-130°	317.1	1.8
130°-140°	158.7	0.9
140°-150°	90.5	0.5
150°-160°	51.1	0.3
160°-170°	25.2	0.1
170°-180°	7.7	0.0
0°-30°	3980.0	22.4
0°-40°	6665.6	37.6
0°-60°	12833.0	72.3
0°-90°	15298.7	86.2
90°-120°	1791.4	10.1
90°-150°	2357.7	13.3
90°-180°	2442.0	13.8
0°-180°	17740.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5222	5222	5222	5222	5222	
5°	5174	5213	5241	5288	5282	491
15°	4895	5033	5081	5043	5002	1378
25°	4338	4570	4492	4408	4412	1991
35°	3521	3893	4088	4767	5072	2195
45°	2592	3262	4458	5398	5511	1999
55°	1726	2857	4152	3640	3236	1549
65°	990	1980	1901	1057	909	980
75°	399	926	611	418	397	435
85°	84	330	311	304	308	94
90°	6	149	246	288	300	9
95°	48	166	313	390	422	145
105°	877	902	840	650	610	832
115°	608	630	673	686	683	614
125°	302	321	354	364	363	282
135°	181	184	202	216	218	143
145°	135	136	140	148	151	86
155°	110	112	111	112	112	50
165°	87	88	89	89	89	25
175°	78	79	79	80	80	8
180°	78	78	78	78	78	



TEST NUMBER: P828608

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5222.1	5222.1	5222.1	5222.1	5222.1
2.5°	5199.6	5222.1	5223.3	5254.8	5251.4
5°	5173.7	5213.2	5241.4	5287.5	5281.9
7.5°	5130.9	5192.8	5242.5	5293.2	5288.7
10°	5070.1	5154.6	5219.9	5261.6	5248.1
12.5°	4991.2	5102.8	5166.9	5176.0	5150.1
15°	4895.4	5032.9	5081.3	5043.0	5002.4
17.5°	4787.2	4948.4	4965.3	4881.9	4831.2
20°	4652.0	4835.7	4818.8	4703.9	4647.5
22.5°	4502.2	4711.8	4657.7	4537.1	4483.0
25°	4337.7	4569.8	4492.1	4407.6	4412.1
27.5°	4145.1	4408.7	4333.2	4371.6	4443.6
30°	3949.0	4239.7	4193.5	4416.6	4558.6
32.5°	3733.8	4066.2	4107.9	4548.4	4780.5
35°	3520.9	3892.7	4087.6	4767.0	5072.3
37.5°	3285.4	3717.0	4120.3	5019.4	5339.3
40°	3056.7	3545.7	4194.6	5245.8	5516.2
42.5°	2823.4	3392.4	4319.7	5379.9	5590.6
45°	2592.5	3261.7	4458.3	5397.9	5510.6
47.5°	2361.5	3151.3	4554.1	5254.8	5203.0
50°	2138.4	3053.3	4560.8	4911.2	4699.3
52.5°	1930.0	2963.2	4436.9	4363.7	4034.7
55°	1726.1	2857.3	4151.9	3640.3	3235.8
57.5°	1540.1	2710.8	3712.4	2862.9	2421.2
60°	1343.0	2512.5	3144.6	2094.5	1746.4
62.5°	1161.6	2265.8	2508.0	1457.9	1255.1
65°	990.4	1979.6	1900.7	1056.8	909.3
67.5°	808.9	1683.2	1402.8	770.7	676.0
70°	667.0	1408.3	1044.5	599.4	544.2
72.5°	521.7	1147.0	780.8	486.7	456.3
75°	398.8	926.1	610.7	418.0	396.6
77.5°	294.0	732.3	491.2	369.5	349.3
80°	206.1	576.9	411.2	330.1	322.2
82.5°	138.6	446.2	350.4	314.3	315.4
85°	84.5	330.1	311.0	304.2	307.6
87.5°	40.6	234.3	267.0	277.2	280.6
90°	5.5	149.0	245.9	288.2	300.0
92.5°	14.8	130.4	242.8	298.2	315.2
95°	48.3	166.3	312.9	389.8	421.5
97.5°	236.1	310.5	418.6	505.3	537.3
100°	483.3	559.1	541.9	593.6	604.8
102.5°	745.0	781.2	654.5	623.7	619.0
105°	876.6	902.0	839.7	649.8	609.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	709.3	740.0	773.4	769.2	743.6
115°	608.4	630.3	673.1	686.0	683.0
117.5°	522.6	535.8	576.5	589.1	591.1
120°	433.9	452.5	493.0	502.2	498.1
122.5°	365.3	381.3	416.9	427.6	423.5
125°	301.8	320.8	354.0	364.3	362.8
127.5°	255.4	267.9	301.3	313.4	313.7
130°	223.3	230.2	259.2	271.4	274.5
132.5°	198.9	205.0	226.8	241.6	243.0
135°	180.7	184.1	201.5	215.6	218.5
137.5°	165.9	168.5	181.5	195.5	197.7
140°	152.8	156.3	165.2	178.1	180.1
142.5°	142.7	145.0	151.9	162.6	163.7
145°	135.1	136.3	140.1	147.6	150.8
147.5°	127.3	129.6	131.4	137.6	138.8
150°	121.2	122.9	123.3	126.4	129.5
152.5°	115.1	116.9	117.2	118.1	120.3
155°	109.9	111.6	111.1	112.0	112.0
157.5°	96.5	98.2	100.0	100.9	100.9
160°	93.0	93.9	95.6	96.5	96.5
162.5°	89.6	90.4	91.3	92.2	92.2
165°	86.9	87.8	88.7	88.7	88.7
167.5°	84.3	84.3	85.2	86.1	86.1
170°	81.7	82.6	82.6	83.5	83.5
172.5°	80.0	80.9	80.9	80.9	81.7
175°	78.2	79.1	79.1	80.0	80.0
177.5°	78.2	78.2	78.2	78.2	78.2
180°	78.2	78.2	78.2	78.2	78.2



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - 90°-270°







107.5°	881.2	914.0	905.9	747.6	643.8
110°	813.4	846.0	859.8	810.8	727.9



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

Report Prepared for

Cooper Lighting Solutions

METALUX

Report Number: SP1-2307-100-9

Test Date: 08/01/2023

Luminaire Tested: OHB-15SE-N-UNV-L950-CD

Data in this report applies to families of products including OHB-15SE-N-UNV-L950-CD.

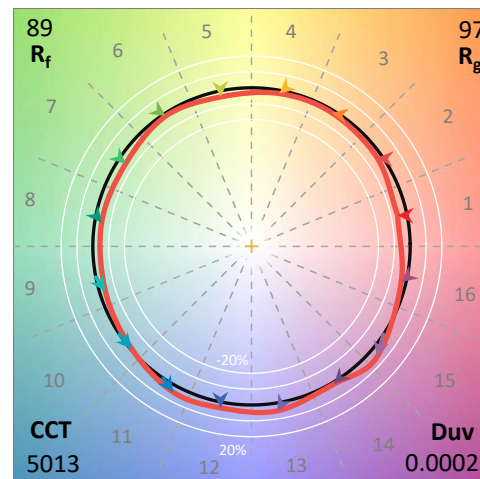
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2307-100-9
 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-L950-CD**
 Description: 15000 LUMEN OHB SE LED LUMINAIRE WITH 90CRI, 5000K LEDS AND NARROW LENS

LENS

Spectral Parameters

CCT (K):	5013	CRI (Ra):	92.0		
CIE u':	0.2111	R1:	92.6	R9:	62.7
CIE v':	0.4847	R2:	96.7	R10:	90.0
Duv:	0.0002	R3:	96.5	R11:	89.8
CIE x:	0.3447	R4:	90.1	R12:	69.9
CIE y:	0.3517	R5:	91.1	R13:	94.5
CIE z:	0.3036	R6:	92.0	R14:	98.3
Peak Wavelength (nm):	455	R7:	92.4		
Dominant Wavelength (nm):	572	R8:	84.9		
Purity:	9.1				
Rf:	88.9				
Rg:	97.2				



Test Conditions

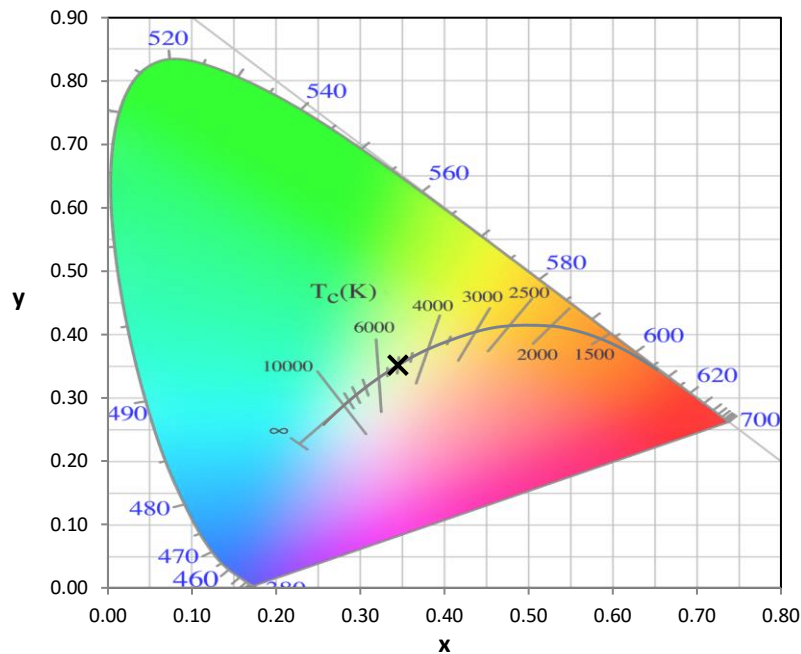
Stabilization Time: 26M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.7/57%
 Sphere Temperature (°C): 25.2

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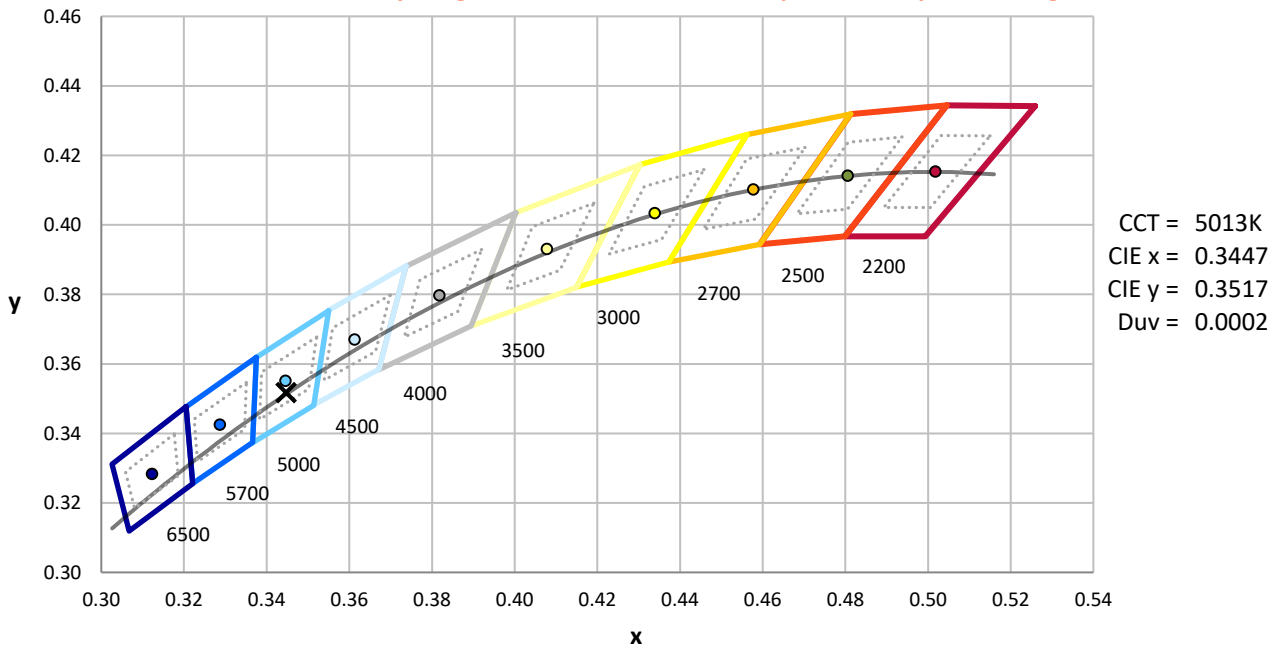
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	2/9/2023	8/9/2023
Power Meter	XITRON 2801 IN0071	11/29/2022	11/29/2023
AC Power Source	CHROMA 61603 IN0063	11/28/2022	11/28/2023
DC Power Source	AGILENT E3634A IN0208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



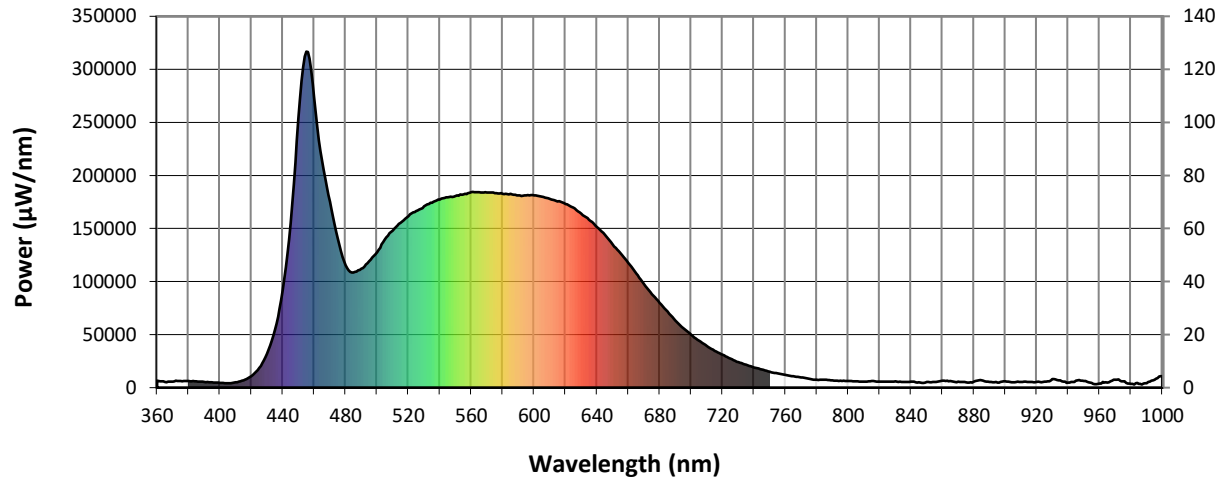
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 4-step quadrangle

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Photopic Flux vs. Wavelength

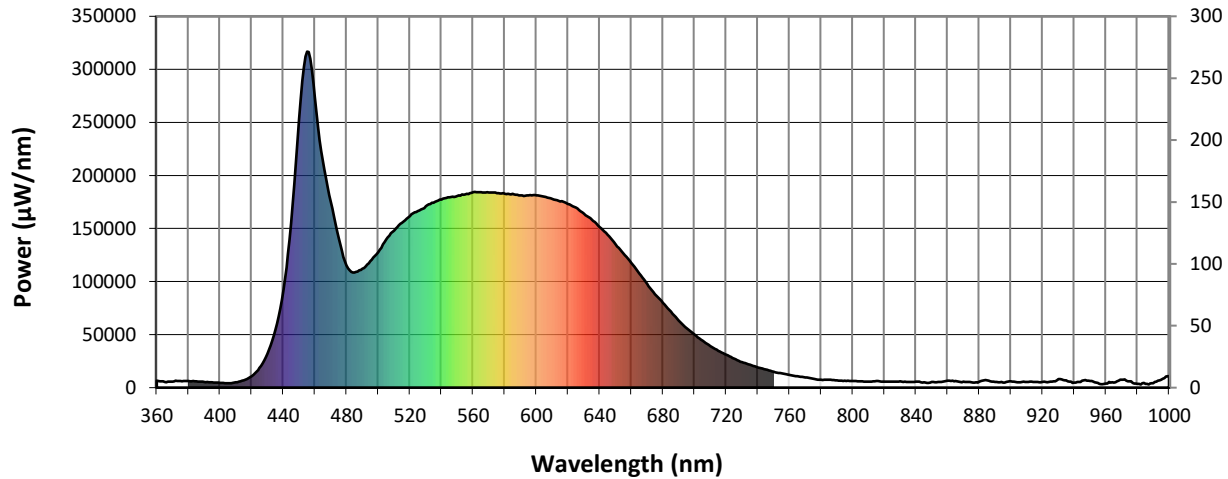


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λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	6694	NR	490	112019	NR	620	173132	NR	750	14981	NR	880	5536	NR
365	5354	NR	495	119136	NR	625	169860	NR	755	13480	NR	885	6938	NR
370	5722	NR	500	127627	NR	630	163982	NR	760	11900	NR	890	5411	NR
375	6251	NR	505	139687	NR	635	158304	NR	765	10671	NR	895	4784	NR
380	6177	NR	510	148127	NR	640	151433	NR	770	9643	NR	900	5872	NR
385	5889	NR	515	155327	NR	645	144044	NR	775	8310	NR	905	5214	NR
390	5252	NR	520	161724	NR	650	134971	NR	780	7378	NR	910	5425	NR
395	5012	NR	525	166350	NR	655	126523	NR	785	7348	NR	915	5372	NR
400	4505	NR	530	170827	NR	660	117624	NR	790	6731	NR	920	5263	NR
405	4163	NR	535	174287	NR	665	107737	NR	795	6603	NR	925	5581	NR
410	4931	NR	540	177402	NR	670	97796	NR	800	6333	NR	930	7934	NR
415	6887	NR	545	179468	NR	675	88146	NR	805	5919	NR	935	6835	NR
420	10750	NR	550	180621	NR	680	80008	NR	810	5757	NR	940	4871	NR
425	18574	NR	555	182239	NR	685	71588	NR	815	6226	NR	945	6554	NR
430	31943	NR	560	184077	NR	690	63388	NR	820	5694	NR	950	6239	NR
435	54504	NR	565	184113	NR	695	56106	NR	825	5621	NR	955	4562	NR
440	91570	NR	570	183843	NR	700	49976	NR	830	5832	NR	960	3863	NR
445	155007	NR	575	183242	NR	705	44326	NR	835	5478	NR	965	4898	NR
450	253466	NR	580	182759	NR	710	39116	NR	840	5675	NR	970	7576	NR
455	316705	NR	585	182781	NR	715	34755	NR	845	4960	NR	975	6056	NR
460	273954	NR	590	181075	NR	720	30900	NR	850	5274	NR	980	3439	NR
465	214019	NR	595	181315	NR	725	27349	NR	855	5470	NR	985	3623	NR
470	175153	NR	600	181289	NR	730	23954	NR	860	6539	NR	990	4301	NR
475	140894	NR	605	180053	NR	735	21526	NR	865	6378	NR	995	7368	NR
480	115223	NR	610	177907	NR	740	18965	NR	870	5702	NR	1000	10668	NR
485	108577	NR	615	175575	NR	745	17153	NR	875	4933	NR			

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Scotopic Flux vs. Wavelength



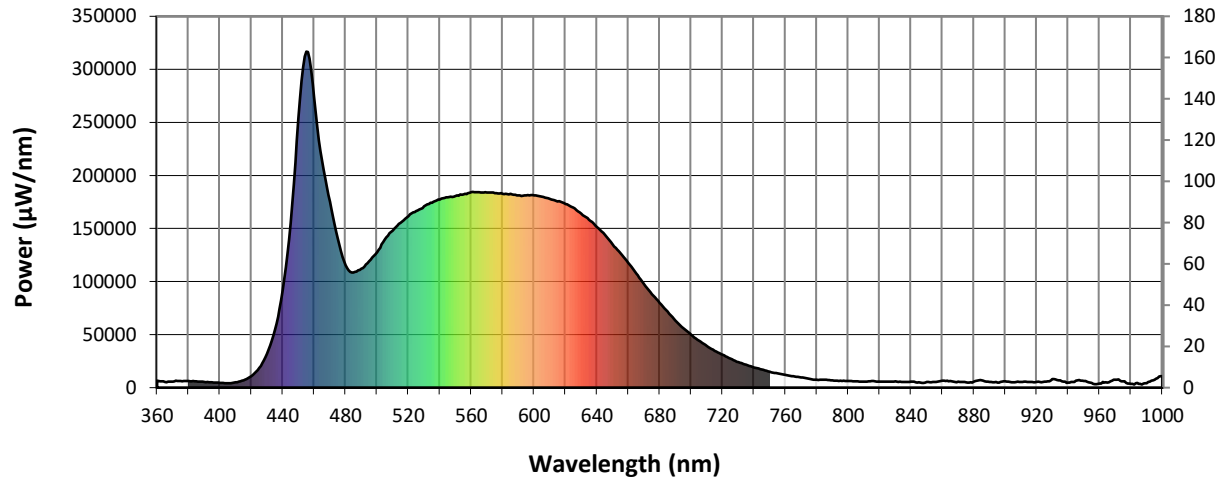
Scotopic Lumens: 26039.5

S/P: 2.08

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	6694	NR	490	112019	NR	620	173132	NR	750	14981	NR	880	5536	NR
365	5354	NR	495	119136	NR	625	169860	NR	755	13480	NR	885	6938	NR
370	5722	NR	500	127627	NR	630	163982	NR	760	11900	NR	890	5411	NR
375	6251	NR	505	139687	NR	635	158304	NR	765	10671	NR	895	4784	NR
380	6177	NR	510	148127	NR	640	151433	NR	770	9643	NR	900	5872	NR
385	5889	NR	515	155327	NR	645	144044	NR	775	8310	NR	905	5214	NR
390	5252	NR	520	161724	NR	650	134971	NR	780	7378	NR	910	5425	NR
395	5012	NR	525	166350	NR	655	126523	NR	785	7348	NR	915	5372	NR
400	4505	NR	530	170827	NR	660	117624	NR	790	6731	NR	920	5263	NR
405	4163	NR	535	174287	NR	665	107737	NR	795	6603	NR	925	5581	NR
410	4931	NR	540	177402	NR	670	97796	NR	800	6333	NR	930	7934	NR
415	6887	NR	545	179468	NR	675	88146	NR	805	5919	NR	935	6835	NR
420	10750	NR	550	180621	NR	680	80008	NR	810	5757	NR	940	4871	NR
425	18574	NR	555	182239	NR	685	71588	NR	815	6226	NR	945	6554	NR
430	31943	NR	560	184077	NR	690	63388	NR	820	5694	NR	950	6239	NR
435	54504	NR	565	184113	NR	695	56106	NR	825	5621	NR	955	4562	NR
440	91570	NR	570	183843	NR	700	49976	NR	830	5832	NR	960	3863	NR
445	155007	NR	575	183242	NR	705	44326	NR	835	5478	NR	965	4898	NR
450	253466	NR	580	182759	NR	710	39116	NR	840	5675	NR	970	7576	NR
455	316705	NR	585	182781	NR	715	34755	NR	845	4960	NR	975	6056	NR
460	273954	NR	590	181075	NR	720	30900	NR	850	5274	NR	980	3439	NR
465	214019	NR	595	181315	NR	725	27349	NR	855	5470	NR	985	3623	NR
470	175153	NR	600	181289	NR	730	23954	NR	860	6539	NR	990	4301	NR
475	140894	NR	605	180053	NR	735	21526	NR	865	6378	NR	995	7368	NR
480	115223	NR	610	177907	NR	740	18965	NR	870	5702	NR	1000	10668	NR
485	108577	NR	615	175575	NR	745	17153	NR	875	4933	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 11248.3 M/P: 0.9

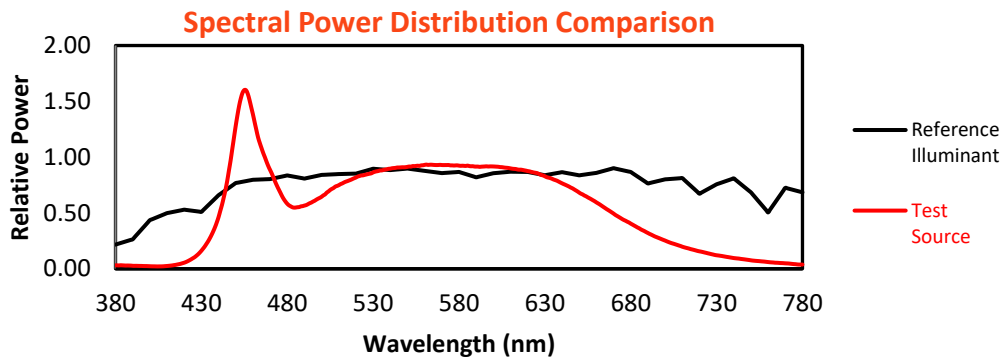
λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	6694	NR	490	112019	NR	620	173132	NR	750	14981	NR	880	5536	NR
365	5354	NR	495	119136	NR	625	169860	NR	755	13480	NR	885	6938	NR
370	5722	NR	500	127627	NR	630	163982	NR	760	11900	NR	890	5411	NR
375	6251	NR	505	139687	NR	635	158304	NR	765	10671	NR	895	4784	NR
380	6177	NR	510	148127	NR	640	151433	NR	770	9643	NR	900	5872	NR
385	5889	NR	515	155327	NR	645	144044	NR	775	8310	NR	905	5214	NR
390	5252	NR	520	161724	NR	650	134971	NR	780	7378	NR	910	5425	NR
395	5012	NR	525	166350	NR	655	126523	NR	785	7348	NR	915	5372	NR
400	4505	NR	530	170827	NR	660	117624	NR	790	6731	NR	920	5263	NR
405	4163	NR	535	174287	NR	665	107737	NR	795	6603	NR	925	5581	NR
410	4931	NR	540	177402	NR	670	97796	NR	800	6333	NR	930	7934	NR
415	6887	NR	545	179468	NR	675	88146	NR	805	5919	NR	935	6835	NR
420	10750	NR	550	180621	NR	680	80008	NR	810	5757	NR	940	4871	NR
425	18574	NR	555	182239	NR	685	71588	NR	815	6226	NR	945	6554	NR
430	31943	NR	560	184077	NR	690	63388	NR	820	5694	NR	950	6239	NR
435	54504	NR	565	184113	NR	695	56106	NR	825	5621	NR	955	4562	NR
440	91570	NR	570	183843	NR	700	49976	NR	830	5832	NR	960	3863	NR
445	155007	NR	575	183242	NR	705	44326	NR	835	5478	NR	965	4898	NR
450	253466	NR	580	182759	NR	710	39116	NR	840	5675	NR	970	7576	NR
455	316705	NR	585	182781	NR	715	34755	NR	845	4960	NR	975	6056	NR
460	273954	NR	590	181075	NR	720	30900	NR	850	5274	NR	980	3439	NR
465	214019	NR	595	181315	NR	725	27349	NR	855	5470	NR	985	3623	NR
470	175153	NR	600	181289	NR	730	23954	NR	860	6539	NR	990	4301	NR
475	140894	NR	605	180053	NR	735	21526	NR	865	6378	NR	995	7368	NR
480	115223	NR	610	177907	NR	740	18965	NR	870	5702	NR	1000	10668	NR
485	108577	NR	615	175575	NR	745	17153	NR	875	4933	NR			

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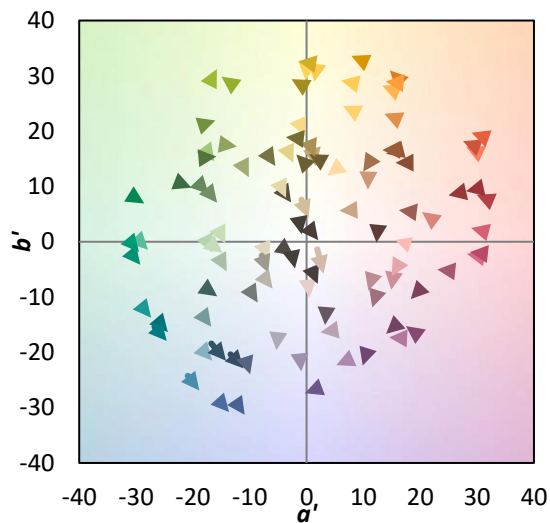
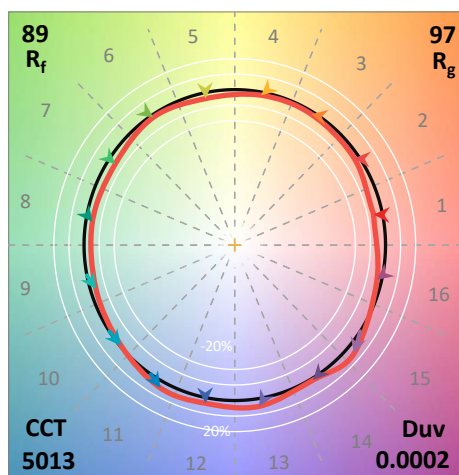
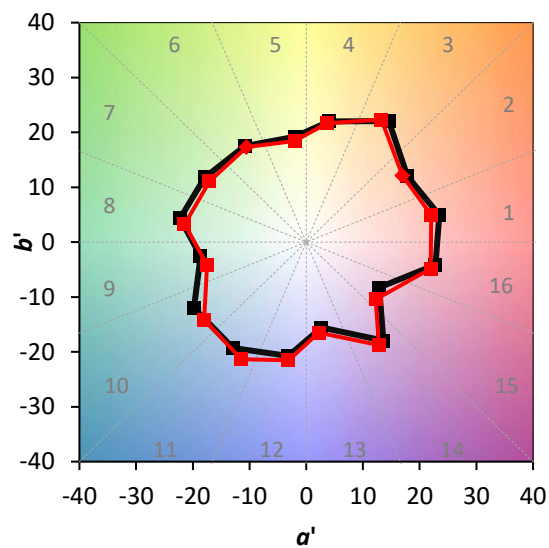
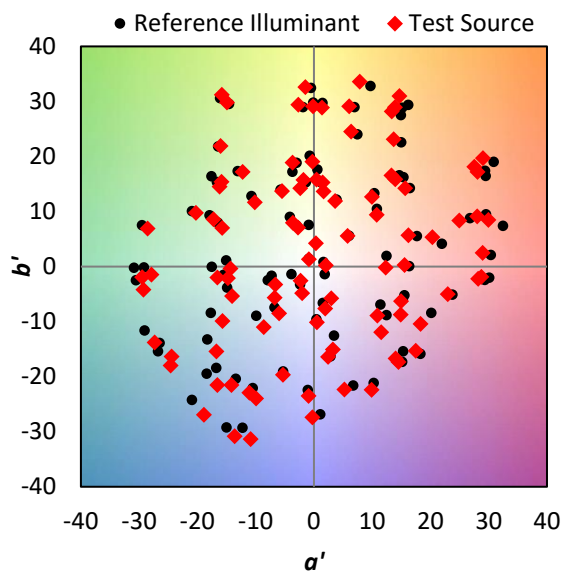
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Summary

$R_f = 88.9$
 $R_g = 97.2$
 $CIE R_a = 92.0$
 $R_9 = 62.7$



Color Vector Graphics

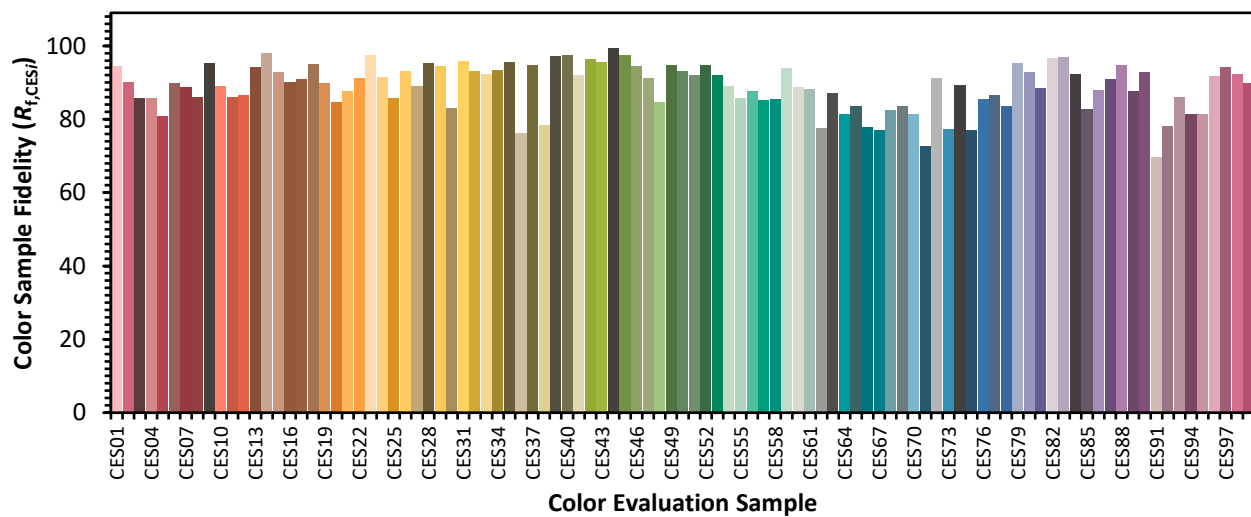


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Individual Sample Fidelity Index ($R_{f,i}$)

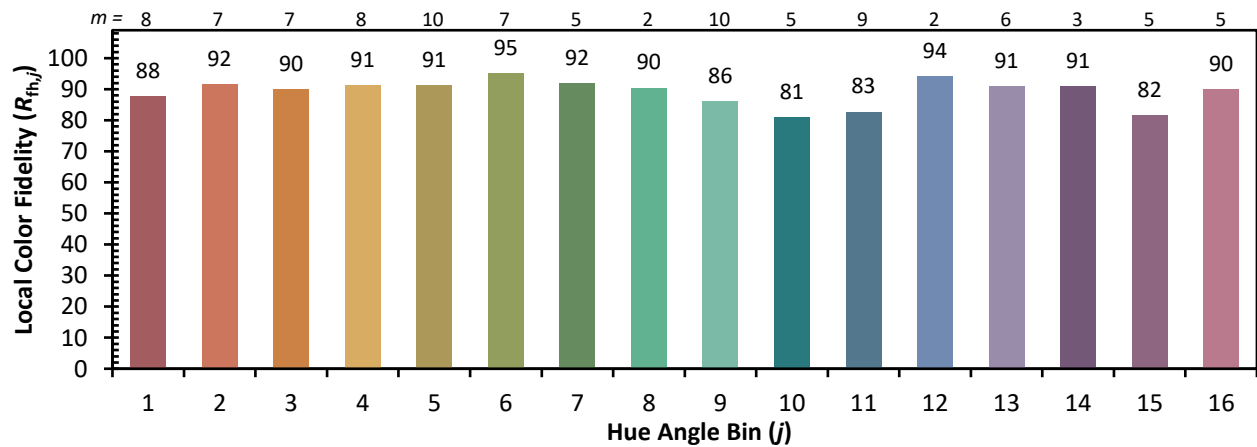
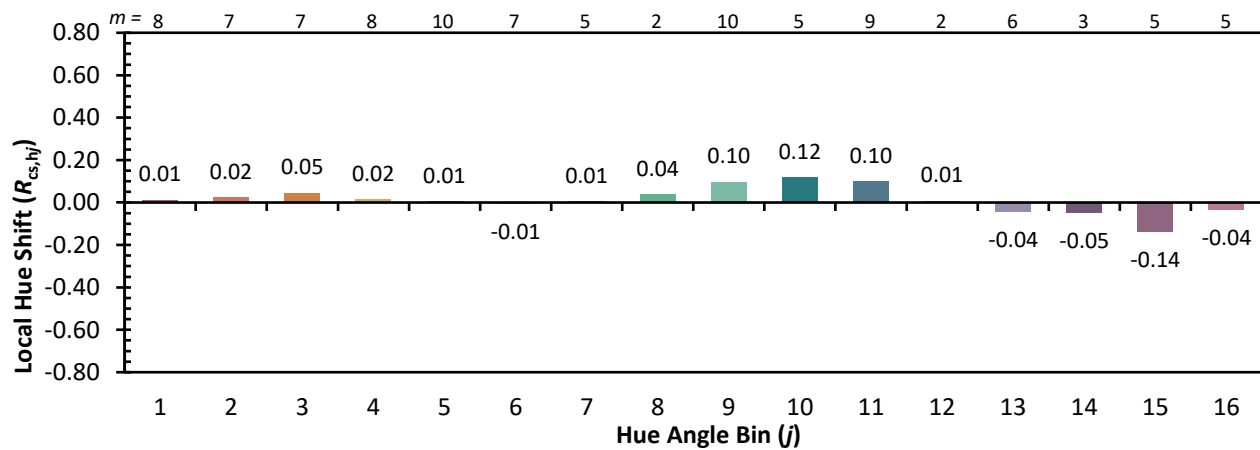
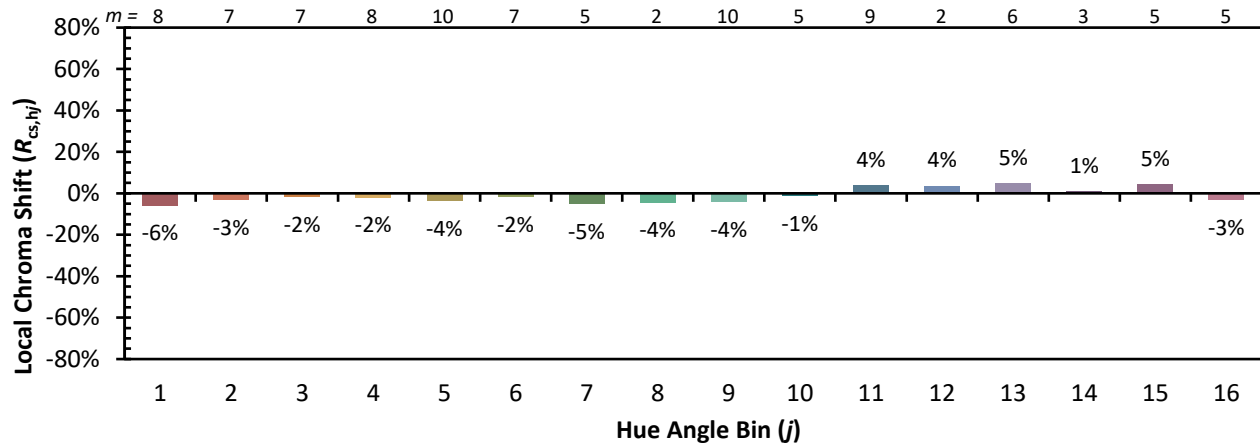
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CES02 = 61	CES27 = 89	CES52 = 95	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 92	CES78 = 84
CES04 = 69	CES29 = 94	CES54 = 89	CES79 = 95
CES05 = 48	CES30 = 83	CES55 = 86	CES80 = 93
CES06 = 50	CES31 = 96	CES56 = 88	CES81 = 89
CES07 = 41	CES32 = 93	CES57 = 85	CES82 = 97
CES08 = 40	CES33 = 92	CES58 = 85	CES83 = 97
CES09 = 29	CES34 = 93	CES59 = 94	CES84 = 92
CES10 = 73	CES35 = 96	CES60 = 89	CES85 = 83
CES11 = 56	CES36 = 76	CES61 = 88	CES86 = 88
CES12 = 62	CES37 = 95	CES62 = 78	CES87 = 91
CES13 = 42	CES38 = 78	CES63 = 87	CES88 = 95
CES14 = 74	CES39 = 97	CES64 = 81	CES89 = 88
CES15 = 71	CES40 = 97	CES65 = 84	CES90 = 93
CES16 = 46	CES41 = 92	CES66 = 78	CES91 = 70
CES17 = 49	CES42 = 96	CES67 = 77	CES92 = 78
CES18 = 56	CES43 = 95	CES68 = 82	CES93 = 86
CES19 = 70	CES44 = 99	CES69 = 84	CES94 = 81
CES20 = 65	CES45 = 97	CES70 = 81	CES95 = 81
CES21 = 85	CES46 = 95	CES71 = 73	CES96 = 92
CES22 = 77	CES47 = 91	CES72 = 91	CES97 = 94
CES23 = 91	CES48 = 85	CES73 = 77	CES98 = 92
CES24 = 90	CES49 = 95	CES74 = 89	CES99 = 90
CES25 = 70	CES50 = 93	CES75 = 77	



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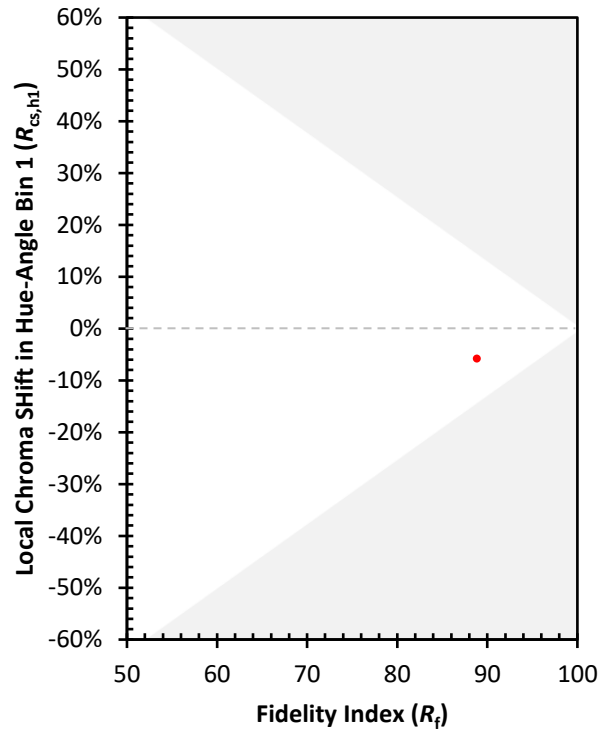
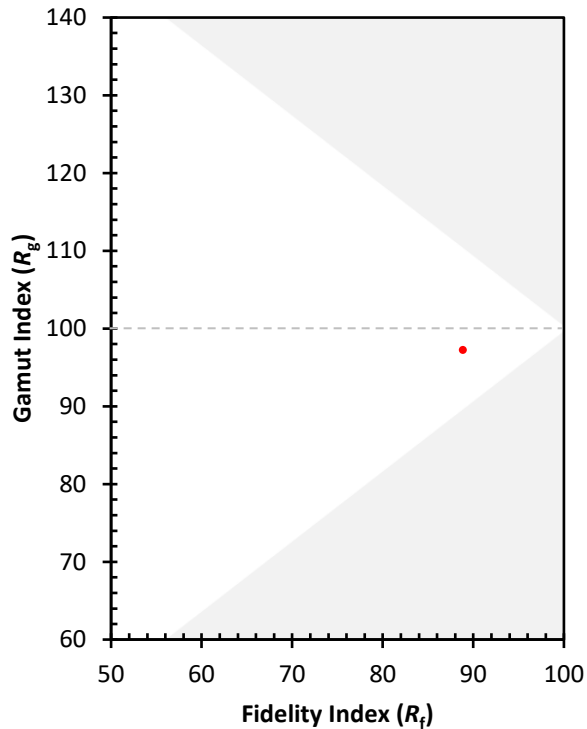
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)