Classified

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: io LED

Report Number: P895823

Luminaire Tested: **GRZ-15L-935-10x30-X-UNV-STD-1F**

Issue Date: 11/20/2024

Report Generated By 670245763 / DESKTOP-DVLU35A

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

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P895823
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	11/20/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	io LED
Catalog Number:	GRZ-15L-935-10x30-X-UNV-STD-1F
Description:	iO LED 90CRI 3500K GRAZER 1500 lumens per ft WITH 10 deg x 30 deg OPTIC
Light Source:	3500K CCT, 90 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	1420.8 lumens
Efficiency:	N/A
Efficacy:	95.4 lumens/watt
Spacing Criteria (0/90/45):	0.16 / 0.44 / 0.26
Luminous Opening:	Rectangular (W 1' x L: 0.17' x H: 0')
CIE Type:	Direct

Input Watts (W):	14.9
Input Voltage (V):	120
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

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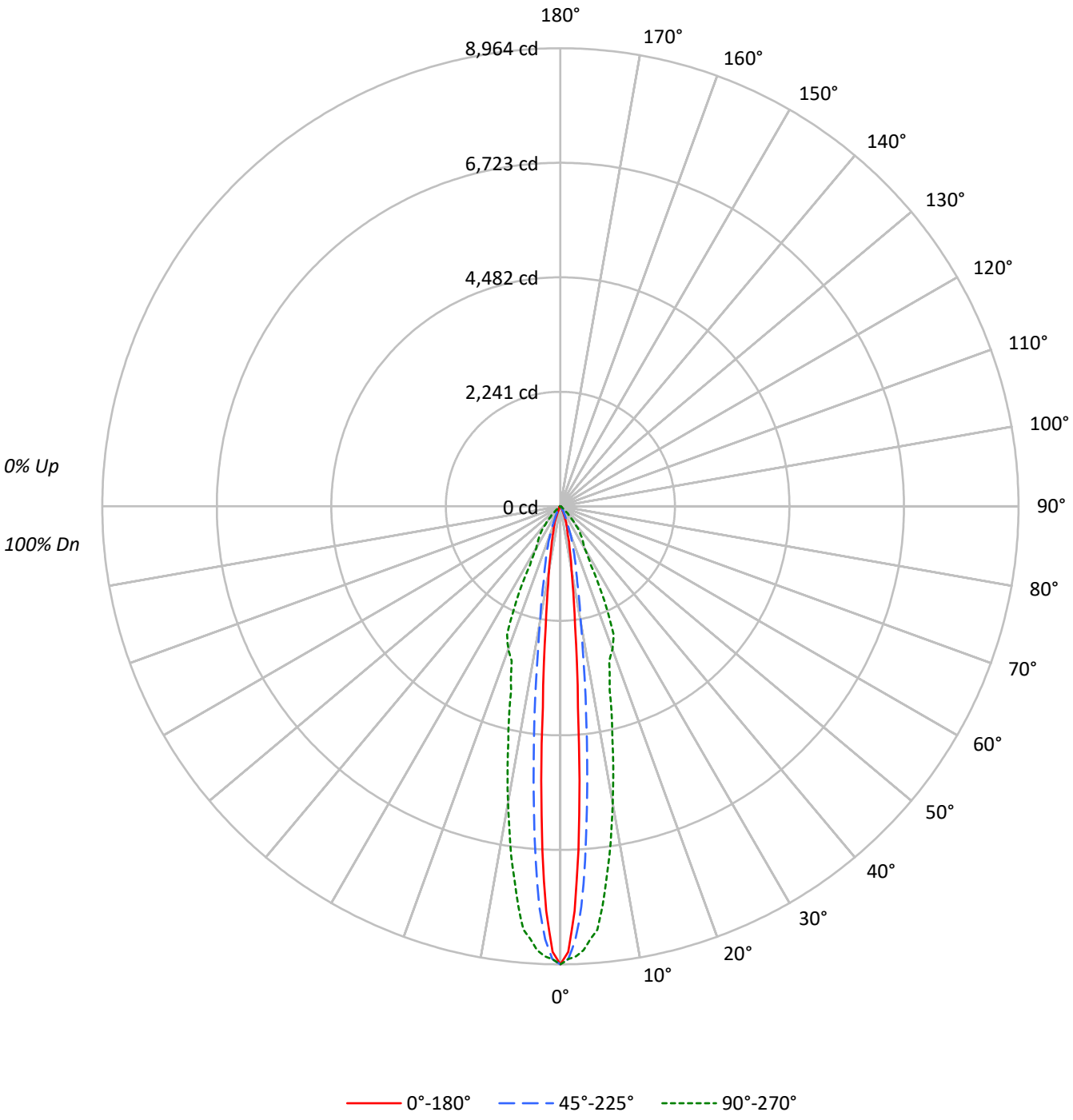
Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95
2	110	106	102	100	108	104	101	99	101	99	96	98	96	94	95	94	92	91
3	106	100	96	93	104	99	95	92	97	93	91	94	92	90	92	90	88	87
4	102	96	91	88	100	95	91	87	93	89	86	91	88	85	89	86	84	83
5	98	92	87	83	97	91	86	83	89	85	82	87	84	82	86	83	81	80
6	95	88	83	80	94	87	83	79	86	82	79	84	81	78	83	80	78	77
7	92	84	80	76	91	84	79	76	83	79	76	82	78	75	81	77	75	74
8	89	81	77	73	88	81	76	73	80	76	73	79	75	73	78	75	72	71
9	86	79	74	71	85	78	74	71	77	73	71	77	73	70	76	73	70	69
10	84	76	72	69	83	76	71	68	75	71	68	74	71	68	74	70	68	67

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	578817	578817	578817
5°	256365	384937	539189
10°	83178	150174	386588
15°	36292	74195	249237
20°	20443	37944	204584
25°	7317	16828	144835
30°	4474	8649	70019
35°	3366	5573	56156
40°	2697	4046	37105
45°	2310	2438	18884
50°	2682	1477	8840
55°	2848	1205	4357
60°	2415	1033	2583
65°	2032	1222	2032
70°	1756	1265	1756
75°	1322	998	1322
80°	1004	1004	1004
85°	963	963	963

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	476.8	33.6
10°-20°	465.6	32.8
20°-30°	260.9	18.4
30°-40°	117.8	8.3
40°-50°	59.6	4.2
50°-60°	22.2	1.6
60°-70°	11.0	0.8
70°-80°	5.7	0.4
80°-90°	1.1	0.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1203.4	84.7
0°-40°	1321.2	93.0
0°-60°	1403.0	98.7
0°-90°	1420.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1420.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	8964	8964	8964	8964	8964	
5°	3955	4535	5939	7623	8319	302
15°	543	670	1110	2427	3728	168
25°	103	115	236	881	2033	58
35°	43	29	71	281	712	27
45°	25	22	27	127	207	21
55°	25	12	11	39	39	22
65°	13	10	8	12	13	13
75°	5	6	4	4	5	6
85°	1	1	1	0	1	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	8964.1	8964.1	8964.1	8964.1	8964.1	8964.1	8964.1	8964.1	8964.1	8964.1	8964.1
1°	8720.1	8721.4	8786.8	8744.1	8848.1	8862.8	8849.5	8873.5	8880.1	8842.8	8862.8
2°	7922.4	7946.4	7985.1	8209.1	8311.9	8478.6	8618.6	8738.8	8790.8	8812.1	8809.5
3°	6744.5	6728.5	6919.2	7134.0	7502.2	7851.6	8195.8	8422.6	8622.6	8686.6	8698.6
4°	5371.8	5309.1	5636.0	5817.3	6315.0	6943.2	7556.9	8046.4	8375.9	8511.9	8479.9
5°	3955.2	4065.9	4294.0	4615.4	5158.4	5938.8	6759.2	7492.9	8013.1	8242.4	8318.6
6°	3081.5	3060.2	3244.2	3636.4	4184.6	5022.3	5960.1	6880.5	7527.5	7803.6	7868.9
7°	2377.1	2363.8	2546.5	2825.3	3285.5	4147.2	5185.1	6260.2	7053.9	7366.1	7363.4
8°	1883.6	1875.6	2002.3	2222.3	2657.3	3385.5	4418.1	5577.3	6487.0	6907.2	6907.2
9°	1522.1	1539.4	1616.8	1811.4	2154.3	2764.0	3776.4	4998.3	5932.1	6343.0	6379.0
10°	1268.6	1277.9	1340.6	1500.7	1786.1	2290.4	3173.5	4324.7	5385.1	5905.5	5896.1
12.5°	823.0	843.0	888.4	991.1	1199.2	1514.1	2108.9	3032.0	4104.5	4624.7	4712.9
15°	542.9	546.9	602.9	692.4	857.7	1109.9	1526.1	2214.3	3064.2	3653.7	3728.4
17.5°	405.5	409.5	422.9	476.2	597.5	812.4	1149.9	1683.4	2490.5	3085.5	3170.8
20°	297.5	284.2	280.2	310.8	405.5	552.2	839.0	1312.6	2020.9	2824.0	2977.3
22.5°	173.4	170.7	164.0	189.4	261.5	362.9	570.9	980.4	1708.8	2514.5	2726.6
25°	102.7	100.0	98.7	120.0	164.0	236.2	389.5	741.7	1300.6	1848.9	2032.9
27.5°	74.7	72.0	65.3	74.7	108.0	162.7	274.8	536.2	892.4	1188.6	1288.6
30°	60.0	57.3	45.3	49.3	74.7	116.0	201.4	370.9	633.7	883.0	939.1
32.5°	50.7	48.0	34.7	36.0	52.0	88.0	157.3	285.5	512.2	764.4	827.0
35°	42.7	40.0	28.0	29.3	40.0	70.7	129.3	234.8	420.2	657.7	712.4
37.5°	36.0	33.3	24.0	25.3	34.7	58.7	117.3	202.8	348.2	540.2	593.5
40°	32.0	29.3	21.3	24.0	32.0	48.0	104.0	172.0	285.5	417.5	440.2
42.5°	28.0	25.3	21.3	24.0	29.3	37.3	76.0	137.3	232.2	300.2	318.8
45°	25.3	24.0	20.0	22.7	25.3	26.7	48.0	106.7	186.7	206.8	206.8
47.5°	26.7	24.0	18.7	20.0	20.0	20.0	29.3	84.0	145.3	140.0	136.0
50°	26.7	22.7	17.3	16.0	16.0	14.7	20.0	65.3	108.0	89.3	88.0
52.5°	26.7	22.7	16.0	14.7	13.3	12.0	14.7	49.3	76.0	57.3	57.3
55°	25.3	21.3	13.3	12.0	10.7	10.7	12.0	34.7	52.0	40.0	38.7
57.5°	22.7	18.7	12.0	10.7	10.7	9.3	9.3	22.7	40.0	30.7	26.7
60°	18.7	16.0	10.7	10.7	10.7	8.0	8.0	14.7	32.0	22.7	20.0
62.5°	16.0	13.3	10.7	10.7	10.7	8.0	6.7	10.7	26.7	18.7	16.0
65°	13.3	10.7	9.3	10.7	10.7	8.0	5.3	8.0	22.7	14.7	13.3
67.5°	10.7	9.3	8.0	9.3	9.3	6.7	4.0	5.3	18.7	12.0	10.7
70°	9.3	8.0	6.7	8.0	9.3	6.7	4.0	5.3	14.7	9.3	9.3
72.5°	6.7	6.7	6.7	8.0	8.0	5.3	2.7	4.0	12.0	8.0	8.0
75°	5.3	5.3	5.3	6.7	6.7	4.0	2.7	2.7	9.3	6.7	5.3
77.5°	4.0	4.0	4.0	5.3	5.3	2.7	1.3	2.7	6.7	4.0	4.0
80°	2.7	2.7	2.7	4.0	4.0	2.7	1.3	1.3	4.0	2.7	2.7
82.5°	1.3	1.3	1.3	2.7	2.7	1.3	1.3	1.3	1.3	1.3	1.3
85°	1.3	1.3	1.3	1.3	1.3	1.3	0.0	0.0	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

iO LED

Report Number: SP1-2101-124-3

Luminaire Tested: GRZ-05L-935-10X10-X-UNV-STD-2F

Test Date: 02/10/2021

Report Generated By controller / USPTCWHP6086842

Test Information

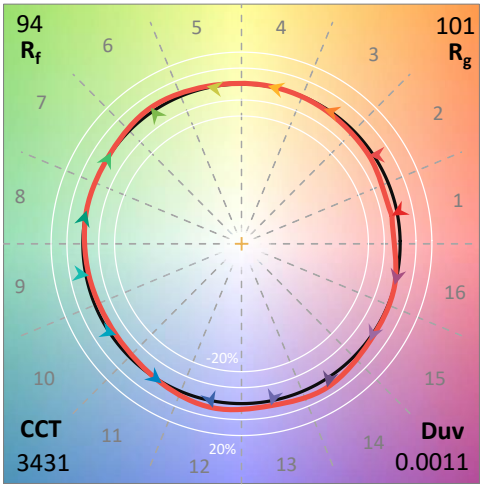
Test Method:	LM-79-08
Report Number:	SP1-2101-124-3
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1
Measurement Geometry:	4π
Issue Date:	02/10/2021
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	iO LED
Catalog Number:	**GRZ-05L-935-10X10-X-UNV-STD-2F**
Description:	IO LED Wall Grazer GRZ

Spectral Parameters

CCT (K):	3431
CIE u':	0.2369
CIE v':	0.5141
Duv:	0.0011
CIE x:	0.4104
CIE y:	0.3958
CIE z:	0.1938
Peak Wavelength (nm):	624
Dominant Wavelength (nm):	580
Purity:	42.2

CRI (Ra):	94.0
R1:	94.7
R2:	95.5
R3:	95.0
R4:	95.4
R5:	94.1
R6:	94.0
R7:	95.4
R8:	88.3
R9:	69.9
R10:	88.4
R11:	95.7
R12:	83.2
R13:	94.8
R14:	96.6

Rf:	93.6
Rg:	100.6



Test Conditions

Stabilization Time:	57M
Operation Time:	12H
Room Temperature (°C) / RH%:	25.5/38%
Sphere Temperature (°C):	24.4

REPORT NUMBER: SP1-2101-124-3

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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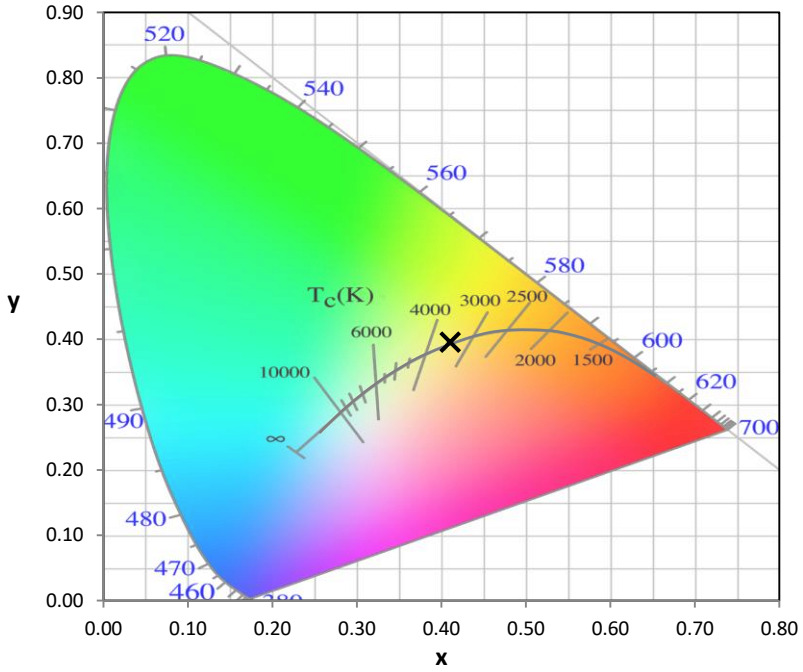
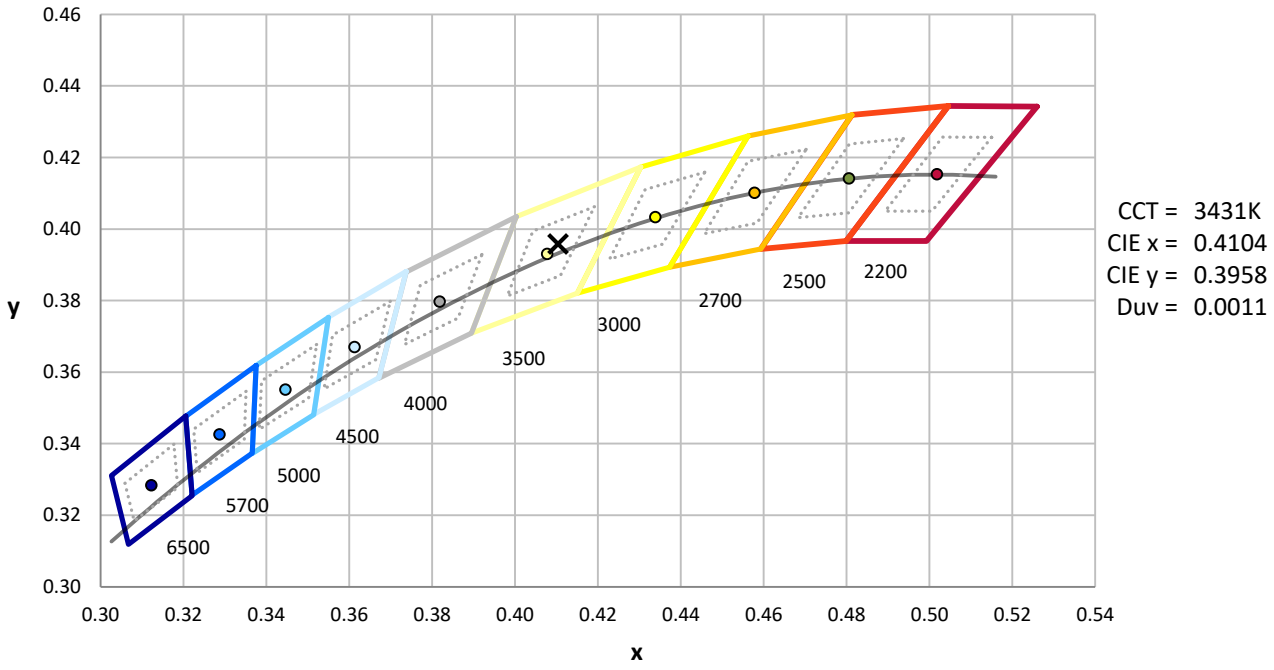
CIE 1931 Chromaticity Diagram



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

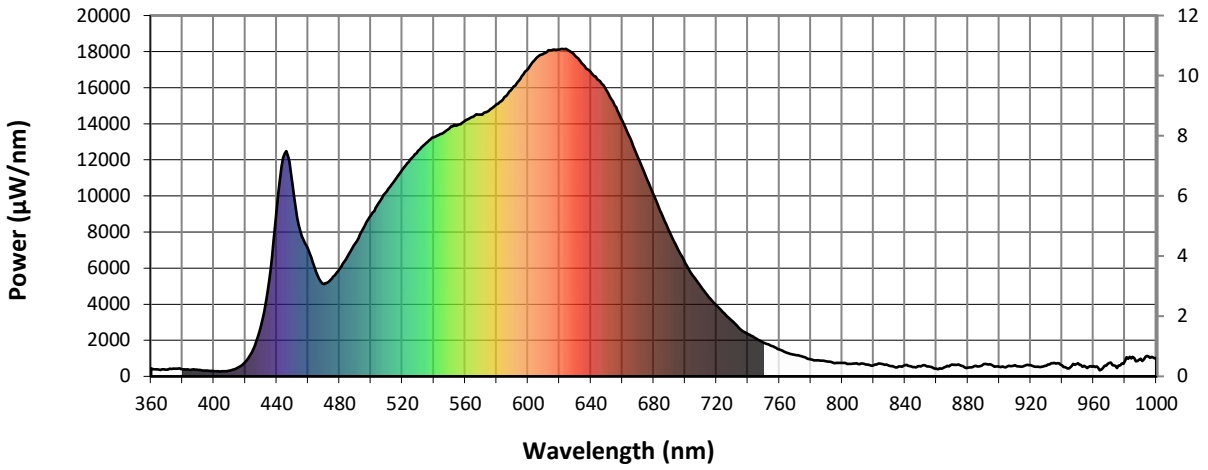


CCT = 3431K
CIE x = 0.4104
CIE y = 0.3958
Duv = 0.0011

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2101-124-3

Photopic Flux vs. Wavelength



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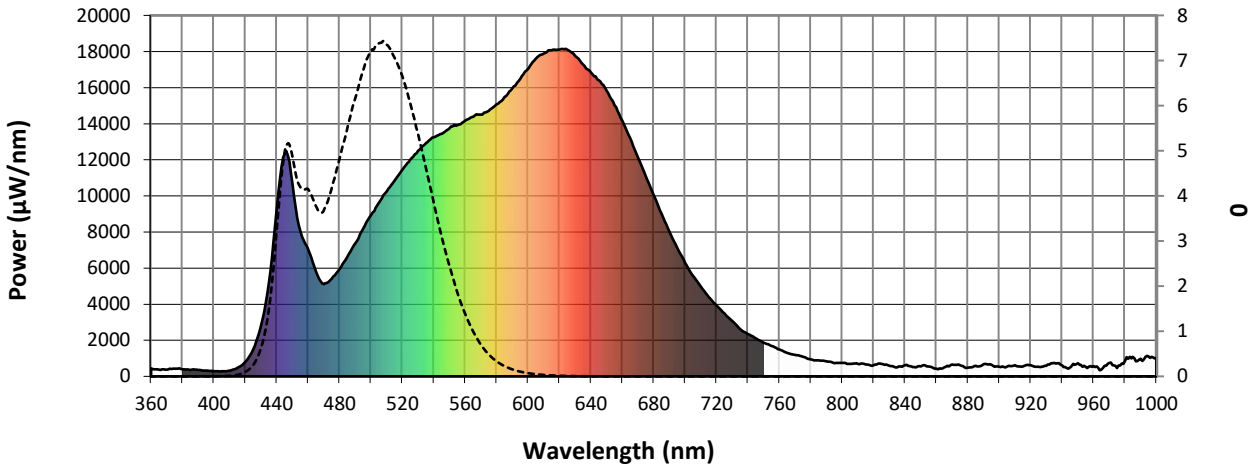
λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	436	0.0	490	7373	1.0	620	18112	4.7	750	1864	0.0	880	485	0.0
365	370	0.0	495	8181	1.5	625	18107	4.0	755	1693	0.0	885	593	0.0
370	381	0.0	500	8943	2.0	630	17758	3.2	760	1498	0.0	890	677	0.0
375	432	0.0	505	9613	2.7	635	17291	2.6	765	1302	0.0	895	646	0.0
380	398	0.0	510	10245	3.5	640	16854	2.0	770	1180	0.0	900	526	0.0
385	359	0.0	515	10835	4.5	645	16410	1.6	775	1079	0.0	905	557	0.0
390	355	0.0	520	11465	5.6	650	15843	1.2	780	946	0.0	910	613	0.0
395	320	0.0	525	12004	6.4	655	15029	0.9	785	883	0.0	915	556	0.0
400	290	0.0	530	12512	7.4	660	14175	0.6	790	832	0.0	920	623	0.0
405	278	0.0	535	12925	8.0	665	13195	0.4	795	731	0.0	925	528	0.0
410	327	0.0	540	13254	8.6	670	12132	0.3	800	744	0.0	930	586	0.0
415	471	0.0	545	13437	8.9	675	11067	0.2	805	688	0.0	935	744	0.0
420	803	0.0	550	13744	9.3	680	10056	0.1	810	699	0.0	940	610	0.0
425	1501	0.0	555	13925	9.5	685	9011	0.1	815	651	0.0	945	486	0.0
430	2800	0.0	560	14164	9.6	690	8032	0.0	820	620	0.0	950	719	0.0
435	5221	0.1	565	14379	9.6	695	7112	0.0	825	686	0.0	955	527	0.0
440	9255	0.1	570	14511	9.4	700	6301	0.0	830	578	0.0	960	561	0.0
445	12350	0.3	575	14729	9.2	705	5570	0.0	835	502	0.0	965	364	0.0
450	10708	0.3	580	15069	9.0	710	4970	0.0	840	624	0.0	970	739	0.0
455	8053	0.3	585	15482	8.6	715	4396	0.0	845	523	0.0	975	457	0.0
460	7058	0.3	590	15975	8.3	720	3921	0.0	850	555	0.0	980	848	0.0
465	5809	0.3	595	16476	7.8	725	3489	0.0	855	553	0.0	985	1084	0.0
470	5111	0.3	600	17051	7.3	730	3068	0.0	860	424	0.0	990	980	0.0
475	5409	0.4	605	17607	6.8	735	2631	0.0	865	489	0.0	995	1093	0.0
480	5958	0.6	610	17893	6.1	740	2336	0.0	870	652	0.0	1000	1033	0.0
485	6631	0.8	615	18072	5.5	745	2108	0.0	875	622	0.0			

REPORT NUMBER: SP1-2101-124-3

Scotopic Flux vs. Wavelength



Scotopic Lumens: 1600.8 **S/P: 1.59**

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	436	0.0	490	7373	11.4	620	18112	0.2	750	1864	0.0	880	485	0.0
365	370	0.0	495	8181	13.2	625	18107	0.2	755	1693	0.0	885	593	0.0
370	381	0.0	500	8943	15.0	630	17758	0.1	760	1498	0.0	890	677	0.0
375	432	0.0	505	9613	16.3	635	17291	0.1	765	1302	0.0	895	646	0.0
380	398	0.0	510	10245	17.4	640	16854	0.0	770	1180	0.0	900	526	0.0
385	359	0.0	515	10835	18.0	645	16410	0.0	775	1079	0.0	905	557	0.0
390	355	0.0	520	11465	18.2	650	15843	0.0	780	946	0.0	910	613	0.0
395	320	0.0	525	12004	18.0	655	15029	0.0	785	883	0.0	915	556	0.0
400	290	0.0	530	12512	17.3	660	14175	0.0	790	832	0.0	920	623	0.0
405	278	0.0	535	12925	16.1	665	13195	0.0	795	731	0.0	925	528	0.0
410	327	0.0	540	13254	14.6	670	12132	0.0	800	744	0.0	930	586	0.0
415	471	0.0	545	13437	12.9	675	11067	0.0	805	688	0.0	935	744	0.0
420	803	0.1	550	13744	11.2	680	10056	0.0	810	699	0.0	940	610	0.0
425	1501	0.4	555	13925	9.5	685	9011	0.0	815	651	0.0	945	486	0.0
430	2800	1.0	560	14164	7.9	690	8032	0.0	820	620	0.0	950	719	0.0
435	5221	2.3	565	14379	6.5	695	7112	0.0	825	686	0.0	955	527	0.0
440	9255	5.2	570	14511	5.1	700	6301	0.0	830	578	0.0	960	561	0.0
445	12350	8.3	575	14729	4.0	705	5570	0.0	835	502	0.0	965	364	0.0
450	10708	8.3	580	15069	3.1	710	4970	0.0	840	624	0.0	970	739	0.0
455	8053	7.0	585	15482	2.4	715	4396	0.0	845	523	0.0	975	457	0.0
460	7058	6.8	590	15975	1.8	720	3921	0.0	850	555	0.0	980	848	0.0
465	5809	6.1	595	16476	1.3	725	3489	0.0	855	553	0.0	985	1084	0.0
470	5111	5.9	600	17051	1.0	730	3068	0.0	860	424	0.0	990	980	0.0
475	5409	6.8	605	17607	0.7	735	2631	0.0	865	489	0.0	995	1093	0.0
480	5958	8.0	610	17893	0.5	740	2336	0.0	870	652	0.0	1000	1033	0.0
485	6631	9.6	615	18072	0.3	745	2108	0.0	875	622	0.0			

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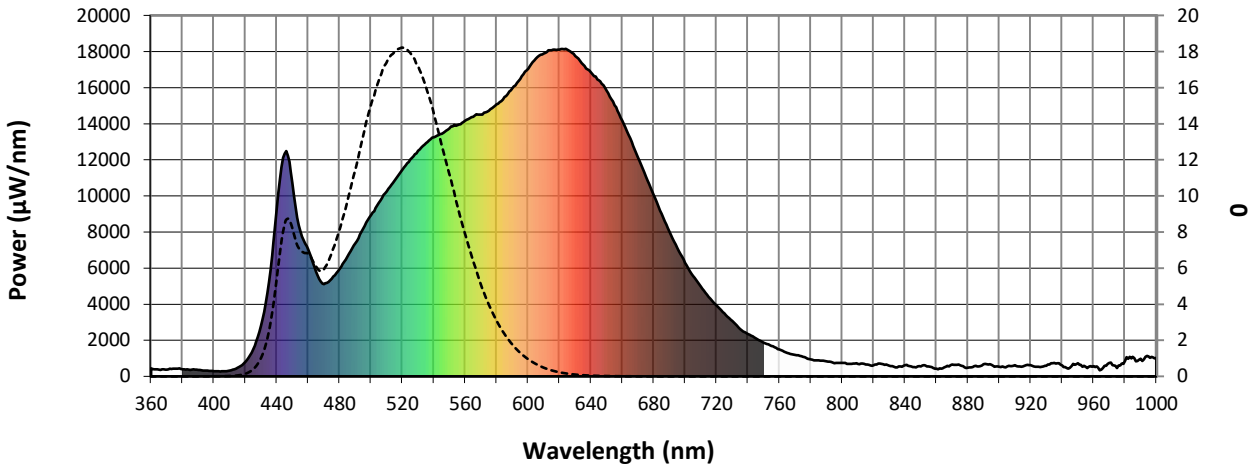
Melanopic Flux vs. Wavelength



Melanopic Lumens: 631 **M/P: 0.63**

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	436	0.0	490	7373	6.1	620	18112	0.0	750	1864	0.0	880	485	0.0
365	370	0.0	495	8181	6.8	625	18107	0.0	755	1693	0.0	885	593	0.0
370	381	0.0	500	8943	7.2	630	17758	0.0	760	1498	0.0	890	677	0.0
375	432	0.0	505	9613	7.4	635	17291	0.0	765	1302	0.0	895	646	0.0
380	398	0.0	510	10245	7.4	640	16854	0.0	770	1180	0.0	900	526	0.0
385	359	0.0	515	10835	7.1	645	16410	0.0	775	1079	0.0	905	557	0.0
390	355	0.0	520	11465	6.7	650	15843	0.0	780	946	0.0	910	613	0.0
395	320	0.0	525	12004	6.1	655	15029	0.0	785	883	0.0	915	556	0.0
400	290	0.0	530	12512	5.4	660	14175	0.0	790	832	0.0	920	623	0.0
405	278	0.0	535	12925	4.7	665	13195	0.0	795	731	0.0	925	528	0.0
410	327	0.0	540	13254	3.9	670	12132	0.0	800	744	0.0	930	586	0.0
415	471	0.0	545	13437	3.1	675	11067	0.0	805	688	0.0	935	744	0.0
420	803	0.1	550	13744	2.5	680	10056	0.0	810	699	0.0	940	610	0.0
425	1501	0.2	555	13925	1.9	685	9011	0.0	815	651	0.0	945	486	0.0
430	2800	0.6	560	14164	1.4	690	8032	0.0	820	620	0.0	950	719	0.0
435	5221	1.4	565	14379	1.0	695	7112	0.0	825	686	0.0	955	527	0.0
440	9255	3.1	570	14511	0.7	700	6301	0.0	830	578	0.0	960	561	0.0
445	12350	4.9	575	14729	0.5	705	5570	0.0	835	502	0.0	965	364	0.0
450	10708	4.9	580	15069	0.3	710	4970	0.0	840	624	0.0	970	739	0.0
455	8053	4.2	585	15482	0.2	715	4396	0.0	845	523	0.0	975	457	0.0
460	7058	4.2	590	15975	0.2	720	3921	0.0	850	555	0.0	980	848	0.0
465	5809	3.8	595	16476	0.1	725	3489	0.0	855	553	0.0	985	1084	0.0
470	5111	3.7	600	17051	0.1	730	3068	0.0	860	424	0.0	990	980	0.0
475	5409	4.1	605	17607	0.0	735	2631	0.0	865	489	0.0	995	1093	0.0
480	5958	4.8	610	17893	0.0	740	2336	0.0	870	652	0.0	1000	1033	0.0
485	6631	5.5	615	18072	0.0	745	2108	0.0	875	622	0.0			

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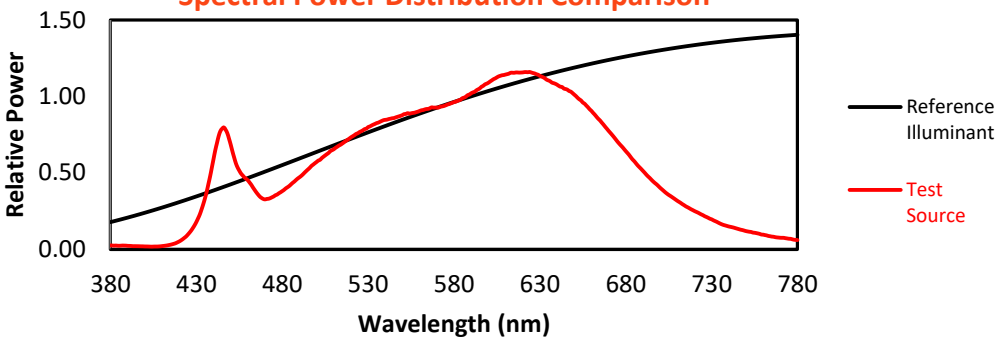
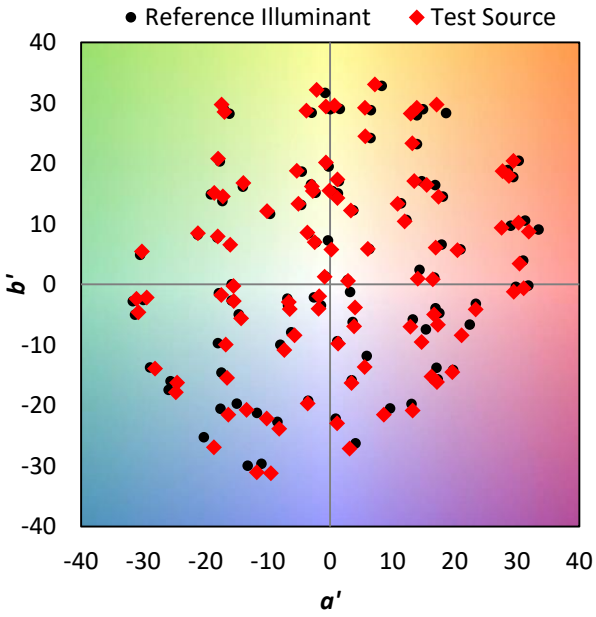
Summary

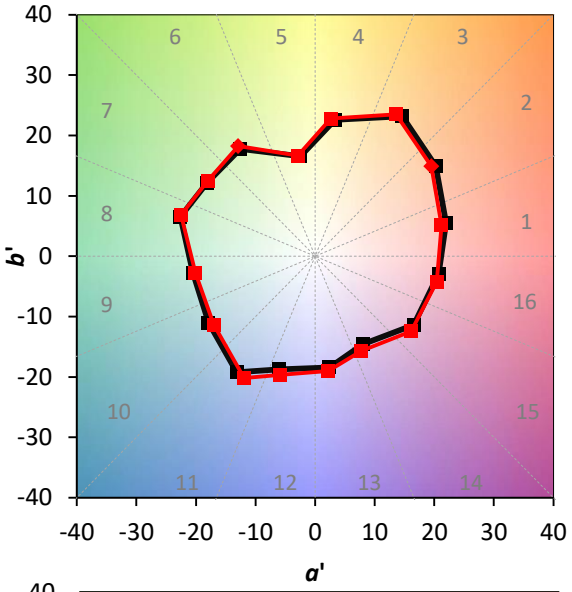
R_f = 93.6
R_g = 100.6
CIE R_a = 94.0
R_9 = 69.9

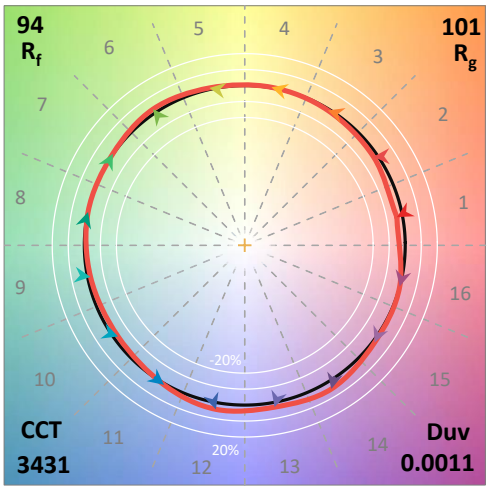
Spectral Power Distribution Comparison

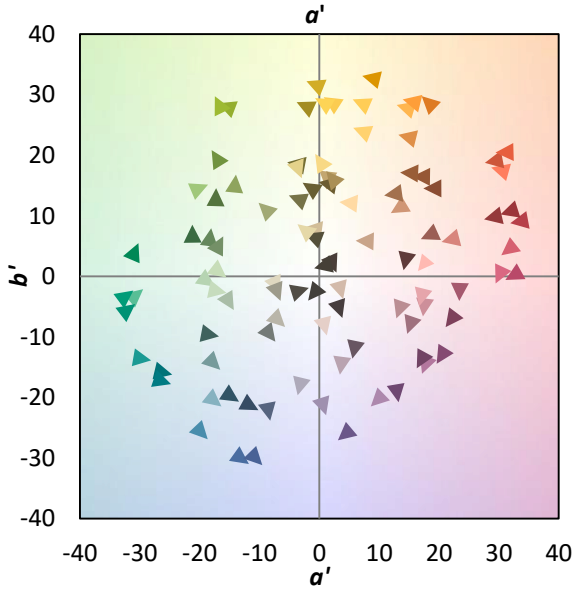


Color Vector Graphics









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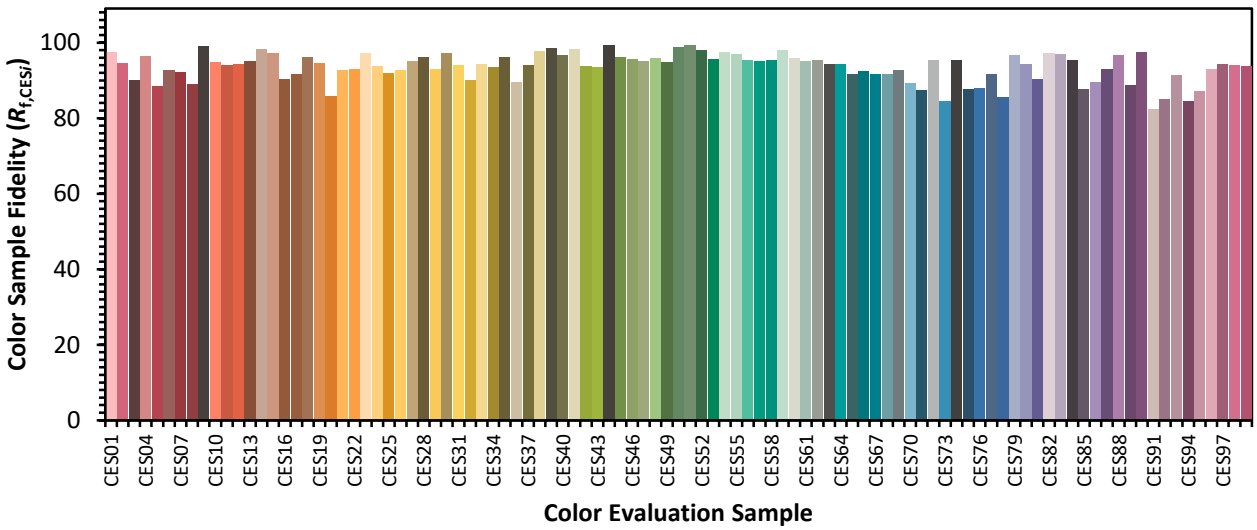
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 93	CES51 = 99	CES76 = 88
CES02 = 62	CES27 = 95	CES52 = 98	CES77 = 92
CES03 = 31	CES28 = 96	CES53 = 96	CES78 = 86
CES04 = 70	CES29 = 93	CES54 = 98	CES79 = 97
CES05 = 50	CES30 = 97	CES55 = 97	CES80 = 94
CES06 = 51	CES31 = 94	CES56 = 95	CES81 = 90
CES07 = 43	CES32 = 90	CES57 = 95	CES82 = 97
CES08 = 42	CES33 = 94	CES58 = 96	CES83 = 97
CES09 = 29	CES34 = 93	CES59 = 98	CES84 = 95
CES10 = 75	CES35 = 96	CES60 = 96	CES85 = 88
CES11 = 58	CES36 = 90	CES61 = 95	CES86 = 90
CES12 = 64	CES37 = 94	CES62 = 95	CES87 = 93
CES13 = 43	CES38 = 98	CES63 = 94	CES88 = 97
CES14 = 74	CES39 = 99	CES64 = 94	CES89 = 89
CES15 = 71	CES40 = 97	CES65 = 92	CES90 = 97
CES16 = 48	CES41 = 98	CES66 = 92	CES91 = 82
CES17 = 49	CES42 = 94	CES67 = 92	CES92 = 85
CES18 = 56	CES43 = 94	CES68 = 92	CES93 = 91
CES19 = 71	CES44 = 99	CES69 = 93	CES94 = 84
CES20 = 66	CES45 = 96	CES70 = 89	CES95 = 87
CES21 = 86	CES46 = 96	CES71 = 88	CES96 = 93
CES22 = 78	CES47 = 95	CES72 = 95	CES97 = 94
CES23 = 91	CES48 = 96	CES73 = 85	CES98 = 94
CES24 = 90	CES49 = 95	CES74 = 95	CES99 = 94
CES25 = 71	CES50 = 99	CES75 = 88	



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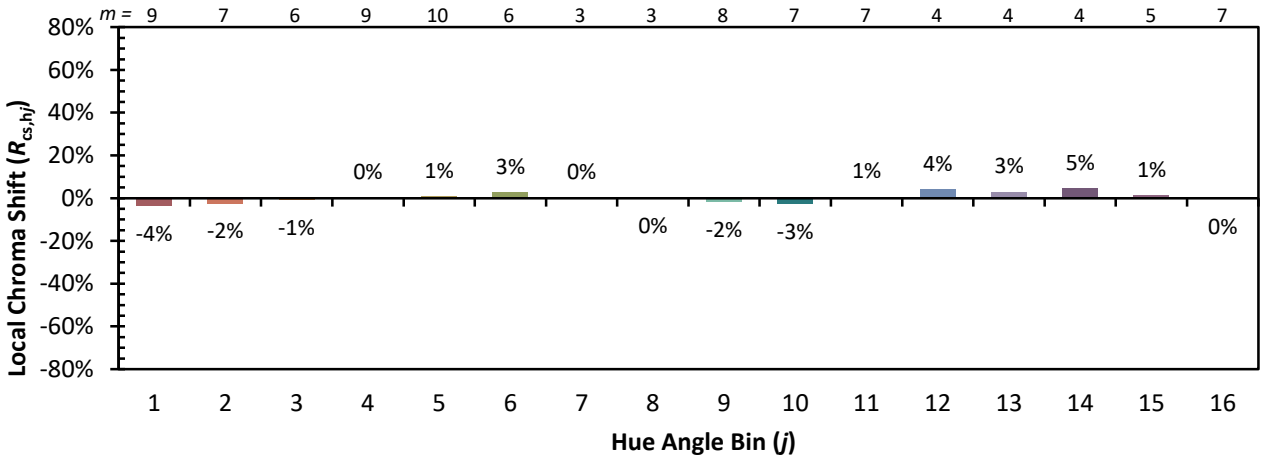
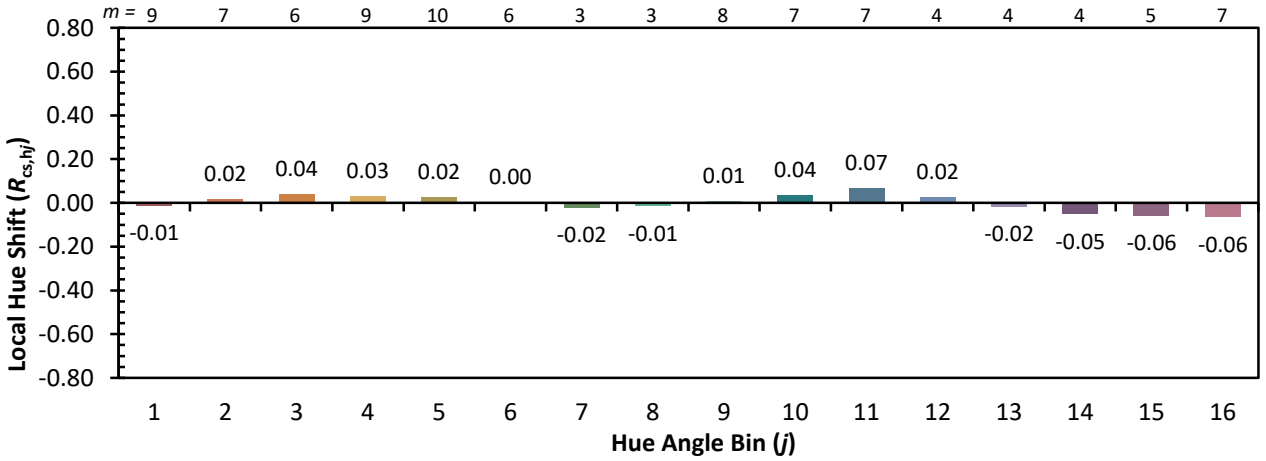
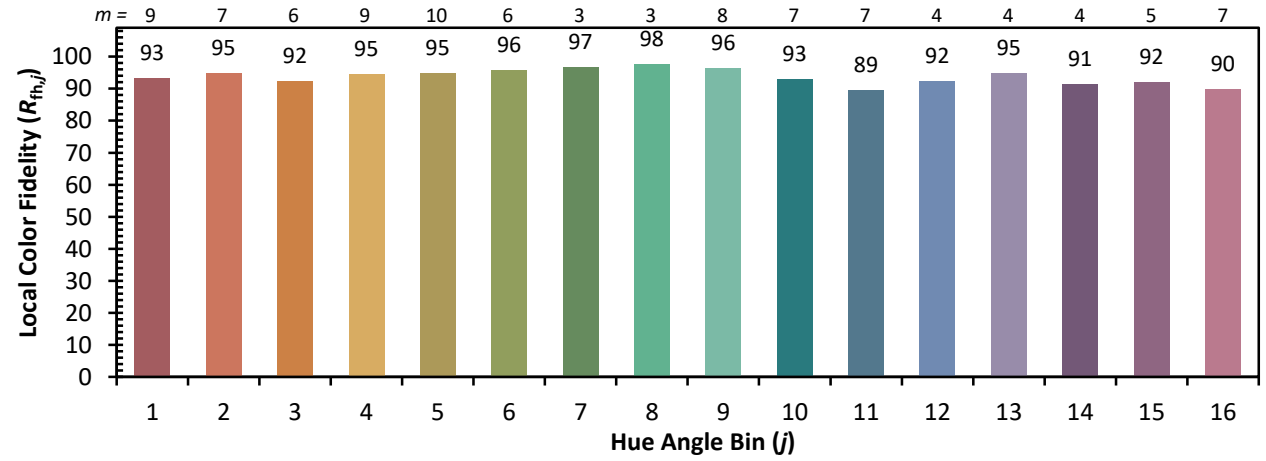
Color Rendition by Hue-Angle Bin







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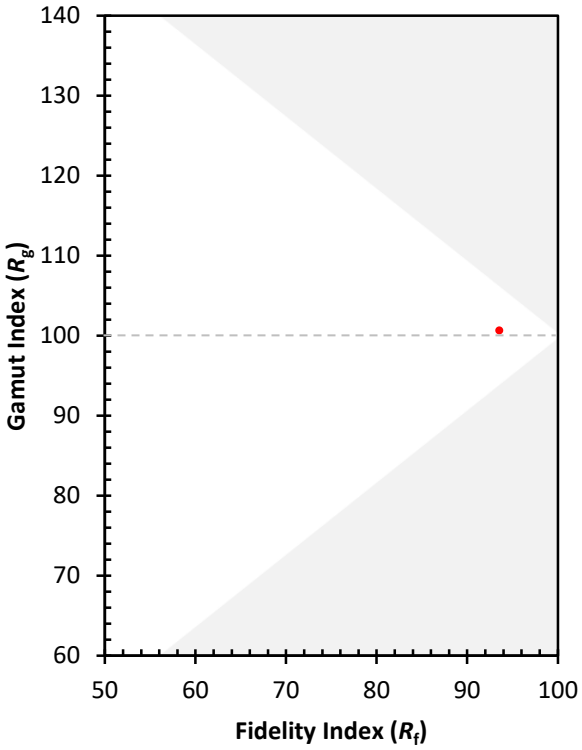
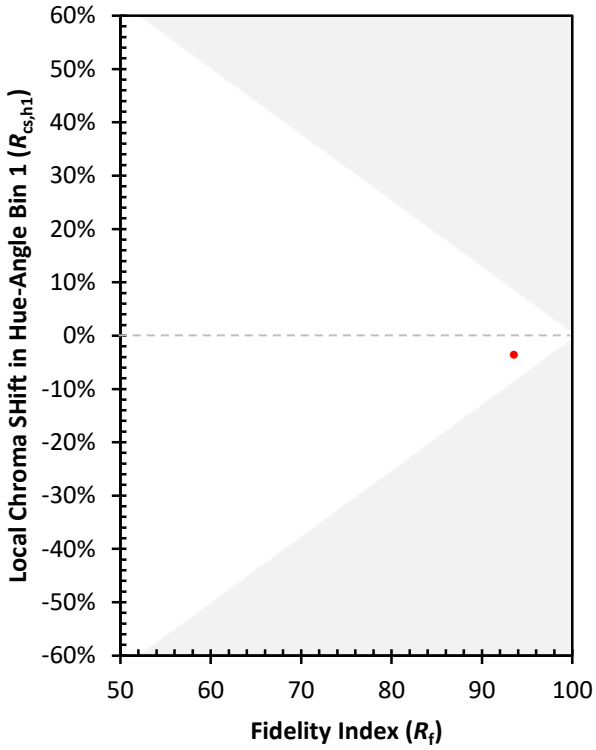
Measure Comparisons





(END OF REPORT)