

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: P860101

Luminaire Tested: **SPHB-36HE-M-L840-CD**

Issue Date: 7/11/2024

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



Test Information

Test Method: LM-79-08
Report Number: P860101
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2404-343-1)
Test Lab: INNOVATION CENTER
Issue Date: 7/11/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: SPHB-36HE-M-L840-CD
Description: 36000 Lumen High Efficacy Select Pro High Bay with Medium Lens and,
4000K 80CRI LEDs
Light Source: -
Ballast/Driver: -

Luminaire Equipment: Sample No. Condition Description

Summary

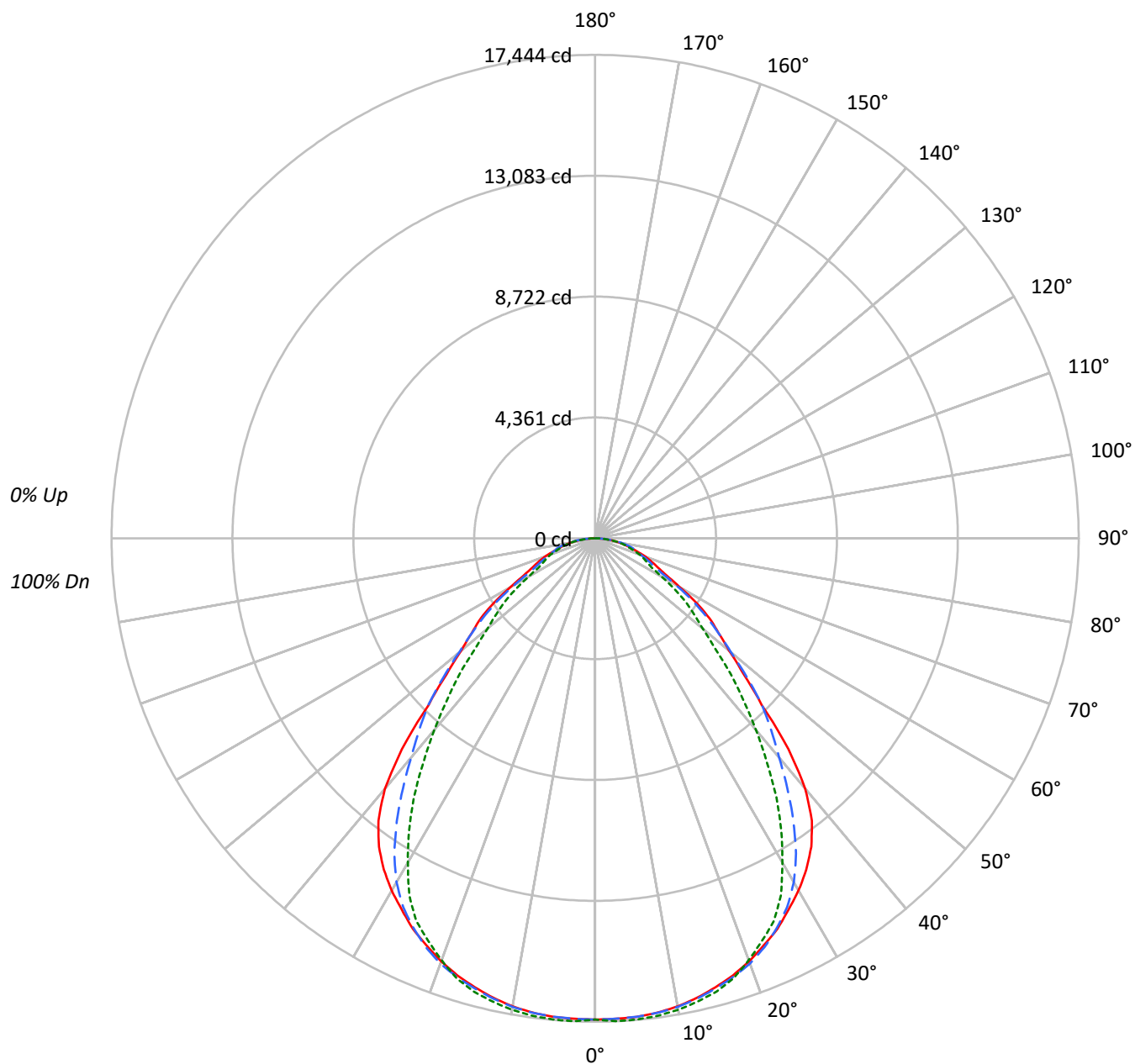
Lumens per Lamp: N/A
Luminaire Lumens: 36046.0 lumens
Efficiency: N/A
Efficacy: 166.9 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.16 / 1.22
Luminous Opening: Rectangular (W 1' x L: 2.04' x H: 0')
CIE Type: Direct

Input Watts (W): 216
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

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CATALOG NUMBER: SPHB-36HE-M-L840-CD

Luminous Intensity Polar Plot





TEST NUMBER: P860101

CATALOG NUMBER: SPHB-36HE-M-L840-CD

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87		
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75		
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66		
4	87	76	69	63	85	75	68	62	73	66	61	70	65	61	68	64	60	58		
5	81	69	61	55	79	68	61	55	66	59	54	64	58	54	62	57	53	51		
6	75	63	55	49	73	62	54	49	60	54	48	59	53	48	57	52	48	46		
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41		
8	66	53	45	40	64	52	45	40	51	44	39	50	44	39	49	43	39	37		
9	61	49	41	36	60	48	41	36	47	41	36	46	40	36	45	40	36	34		
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	91632	91632	91632
5°	91812	91788	92309
10°	91892	91990	92555
15°	91624	91862	92500
20°	91223	91687	90953
25°	90557	90303	88770
30°	89410	87303	82321
35°	87533	80319	73370
40°	81233	71089	62143
45°	63375	63546	51428
50°	51761	52494	41533
55°	46376	44627	36494
60°	37126	35144	29199
65°	31113	28482	25823
70°	29540	27138	26290
75°	26802	28810	25355
80°	26934	29441	26724
85°	23435	27455	22327



TEST NUMBER: P860101

CATALOG NUMBER: SPHB-36HE-M-L840-CD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1651.2	4.6
10°-20°	4748.9	13.2
20°-30°	7089.3	19.7
30°-40°	7735.7	21.5
40°-50°	6328.1	17.6
50°-60°	4160.7	11.5
60°-70°	2387.1	6.6
70°-80°	1446.5	4.0
80°-90°	485.7	1.3
90°-100°	12.6	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°	13489.5	37.4
0°-40°	21225.1	58.9
0°-60°	31714.0	88.0
0°-90°	36033.4	100.0
90°-120°	12.6	0.0
90°-150°	12.6	0.0
90°-180°	13.0	0.0
0°-180°	36046.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	17366	17366	17366	17366	17366	
5°	17334	17307	17330	17401	17428	###
15°	16773	16771	16817	16924	16933	4734
25°	15554	15591	15511	15323	15248	7156
35°	13589	13282	12469	11620	11390	8422
45°	8493	9128	8516	7517	6892	6742
55°	5041	4904	4851	4169	3967	4440
65°	2492	2455	2281	2220	2068	2548
75°	1315	1422	1413	1356	1244	1423
85°	387	440	454	396	369	420
90°	2	32	64	76	80	18
95°	2	5	7	7	5	1
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	



TEST NUMBER: P860101

CATALOG NUMBER: SPHB-36HE-M-L840-CD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	17366.3	17366.3	17366.3	17366.3	17366.3
2.5°	17354.8	17329.6	17352.5	17423.5	17444.2
5°	17334.2	17306.7	17329.6	17400.6	17428.1
7.5°	17263.2	17247.2	17270.1	17341.1	17375.4
10°	17151.0	17132.7	17169.3	17231.1	17274.7
12.5°	16983.8	16976.9	17011.3	17100.6	17118.9
15°	16773.1	16770.8	16816.6	16924.2	16933.4
17.5°	16534.8	16532.6	16589.8	16660.8	16635.6
20°	16246.2	16262.3	16328.7	16262.3	16198.1
22.5°	15900.4	15950.8	15966.8	15758.4	15726.3
25°	15554.5	15591.2	15511.0	15323.2	15247.6
27.5°	15107.9	15151.4	15002.5	14734.5	14519.2
30°	14675.0	14633.8	14329.1	13811.5	13511.4
32.5°	14178.0	14031.4	13483.9	12769.3	12496.8
35°	13589.3	13282.4	12469.3	11619.5	11390.5
37.5°	12844.9	12283.7	11395.0	10508.6	10162.8
40°	11793.6	11145.4	10320.8	9404.6	9022.1
42.5°	10320.8	10080.3	9397.8	8367.1	7911.3
45°	8493.0	9127.5	8515.9	7517.3	6892.0
47.5°	7269.9	8151.8	7416.5	6695.0	5833.8
50°	6305.6	6912.6	6395.0	5744.5	5059.6
52.5°	5609.3	5792.6	5584.1	4869.5	4480.1
55°	5041.3	4903.9	4851.2	4168.6	3967.1
57.5°	4335.8	4260.3	4125.1	3635.0	3369.3
60°	3518.1	3678.5	3330.3	3190.6	2766.9
62.5°	2890.6	3048.6	2675.3	2666.1	2313.4
65°	2492.0	2455.4	2281.3	2219.5	2068.3
67.5°	2205.7	2091.2	2031.6	1951.5	1898.8
70°	1914.8	1866.7	1759.1	1775.1	1704.1
72.5°	1596.5	1658.3	1550.6	1580.4	1452.2
75°	1314.7	1422.4	1413.2	1356.0	1243.7
77.5°	1083.4	1197.9	1218.5	1165.8	1074.2
80°	886.4	964.3	968.9	936.8	879.5
82.5°	650.5	696.3	730.7	675.7	639.0
85°	387.1	439.8	453.5	396.2	368.8
87.5°	126.0	176.4	197.0	203.9	206.1
90°	2.3	32.1	64.1	75.6	80.2
92.5°	2.3	9.2	13.7	20.6	22.9
95°	2.3	4.6	6.9	6.9	4.6
97.5°	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0
102.5°	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: SPHB-36HE-M-L840-CD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	0.0	0.0	0.0	0.0
115°	0.0	0.0	0.0	0.0	0.0
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
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



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - 90°-270°







107.5°	0.0	0.0	0.0	0.0	0.0
110°	0.0	0.0	0.0	0.0	0.0



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

Report Prepared for

Cooper Lighting Solutions

METALUX

Report Number: SP1-2309-187-7

Test Date: 10/09/2023

Luminaire Tested: SPHB-1224SE-M-UNV-L84050-CD-U (24K LUMEN 4000K)

Data in this report applies to families of products including SPHB-1224SE-M-UNV-L84050-CD-U (24K LUMEN 4000K).

Test Information

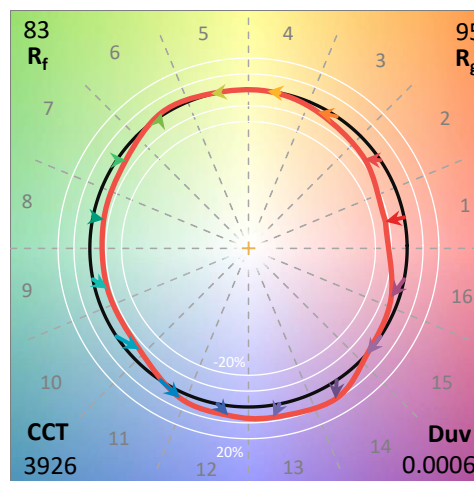
Test Method: LM-79-2019
 Report Number: SP1-2309-187-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/09/2023
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: METALUX
 Catalog Number: **SPHB-1224SE-M-UNV-L84050-CD-U (24K LUMEN 4000K)**
 Description: SPHB SELECT, MEDIUM LENS, 24K LUMENS, 4000K

Spectral Parameters

CCT (K): 3926
 CIE u': 0.2261
 CIE v': 0.5037
 Duv: 0.0006
 CIE x: 0.3841
 CIE y: 0.3802
 CIE z: 0.2357
 Peak Wavelength (nm): 454
 Dominant Wavelength (nm): 579
 Purity: 29.5
 Rf: 82.9
 Rg: 95

CRI (Ra): 82.0
 R1: 80.3
 R2: 88.4
 R3: 93.9
 R4: 80.2
 R5: 79.7
 R6: 83.3
 R7: 86.1
 R8: 64.3

R9: 8.2
 R10: 71.6
 R11: 78.1
 R12: 57.5
 R13: 82.3
 R14: 96.6



Test Conditions

Stabilization Time: 23M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.5/33%
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2309-187-7

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	8/9/2023	2/9/2024
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

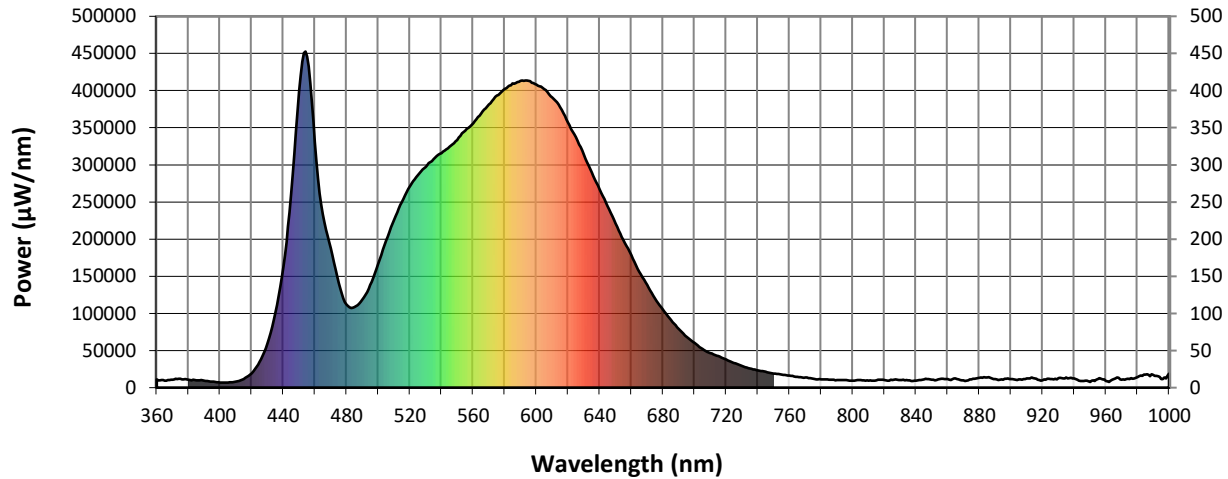


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λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	10992	NR	490	118921	NR	620	356922	NR	750	19019	NR	880	13091	NR
365	9593	NR	495	138088	NR	625	337439	NR	755	17413	NR	885	13768	NR
370	10476	NR	500	166483	NR	630	313667	NR	760	16262	NR	890	11509	NR
375	11916	NR	505	198126	NR	635	289634	NR	765	14555	NR	895	10746	NR
380	10857	NR	510	225943	NR	640	267120	NR	770	13516	NR	900	11526	NR
385	9836	NR	515	249652	NR	645	244025	NR	775	12156	NR	905	11085	NR
390	9329	NR	520	270963	NR	650	221090	NR	780	11138	NR	910	12484	NR
395	8104	NR	525	285863	NR	655	198958	NR	785	10805	NR	915	12235	NR
400	6858	NR	530	297396	NR	660	178676	NR	790	10121	NR	920	9666	NR
405	6914	NR	535	307535	NR	665	155862	NR	795	10392	NR	925	11659	NR
410	8077	NR	540	315948	NR	670	138150	NR	800	9549	NR	930	12967	NR
415	11717	NR	545	324499	NR	675	120142	NR	805	10057	NR	935	13555	NR
420	19513	NR	550	333620	NR	680	105107	NR	810	9285	NR	940	12553	NR
425	34423	NR	555	345725	NR	685	91191	NR	815	9751	NR	945	9165	NR
430	59393	NR	560	355808	NR	690	79275	NR	820	10216	NR	950	7624	NR
435	101278	NR	565	369262	NR	695	68358	NR	825	10410	NR	955	11686	NR
440	162827	NR	570	381413	NR	700	60050	NR	830	10058	NR	960	9106	NR
445	260438	NR	575	393089	NR	705	51990	NR	835	9982	NR	965	11345	NR
450	399252	NR	580	402225	NR	710	46653	NR	840	9215	NR	970	10672	NR
455	445742	NR	585	409494	NR	715	42391	NR	845	11311	NR	975	11689	NR
460	330661	NR	590	413322	NR	720	37628	NR	850	10813	NR	980	14054	NR
465	233593	NR	595	413160	NR	725	33220	NR	855	11652	NR	985	17684	NR
470	187643	NR	600	408148	NR	730	29243	NR	860	11468	NR	990	17244	NR
475	140648	NR	605	401766	NR	735	25806	NR	865	12591	NR	995	11439	NR
480	111871	NR	610	390821	NR	740	23374	NR	870	9925	NR	1000	19016	NR
485	108472	NR	615	377363	NR	745	21294	NR	875	11284	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 39237.7

S/P: 1.65

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	10992	NR	490	118921	NR	620	356922	NR	750	19019	NR	880	13091	NR
365	9593	NR	495	138088	NR	625	337439	NR	755	17413	NR	885	13768	NR
370	10476	NR	500	166483	NR	630	313667	NR	760	16262	NR	890	11509	NR
375	11916	NR	505	198126	NR	635	289634	NR	765	14555	NR	895	10746	NR
380	10857	NR	510	225943	NR	640	267120	NR	770	13516	NR	900	11526	NR
385	9836	NR	515	249652	NR	645	244025	NR	775	12156	NR	905	11085	NR
390	9329	NR	520	270963	NR	650	221090	NR	780	11138	NR	910	12484	NR
395	8104	NR	525	285863	NR	655	198958	NR	785	10805	NR	915	12235	NR
400	6858	NR	530	297396	NR	660	178676	NR	790	10121	NR	920	9666	NR
405	6914	NR	535	307535	NR	665	155862	NR	795	10392	NR	925	11659	NR
410	8077	NR	540	315948	NR	670	138150	NR	800	9549	NR	930	12967	NR
415	11717	NR	545	324499	NR	675	120142	NR	805	10057	NR	935	13555	NR
420	19513	NR	550	333620	NR	680	105107	NR	810	9285	NR	940	12553	NR
425	34423	NR	555	345725	NR	685	91191	NR	815	9751	NR	945	9165	NR
430	59393	NR	560	355808	NR	690	79275	NR	820	10216	NR	950	7624	NR
435	101278	NR	565	369262	NR	695	68358	NR	825	10410	NR	955	11686	NR
440	162827	NR	570	381413	NR	700	60050	NR	830	10058	NR	960	9106	NR
445	260438	NR	575	393089	NR	705	51990	NR	835	9982	NR	965	11345	NR
450	399252	NR	580	402225	NR	710	46653	NR	840	9215	NR	970	10672	NR
455	445742	NR	585	409494	NR	715	42391	NR	845	11311	NR	975	11689	NR
460	330661	NR	590	413322	NR	720	37628	NR	850	10813	NR	980	14054	NR
465	233593	NR	595	413160	NR	725	33220	NR	855	11652	NR	985	17684	NR
470	187643	NR	600	408148	NR	730	29243	NR	860	11468	NR	990	17244	NR
475	140648	NR	605	401766	NR	735	25806	NR	865	12591	NR	995	11439	NR
480	111871	NR	610	390821	NR	740	23374	NR	870	9925	NR	1000	19016	NR
485	108472	NR	615	377363	NR	745	21294	NR	875	11284	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 15753

M/P: 0.66

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	10992	NR	490	118921	NR	620	356922	NR	750	19019	NR	880	13091	NR
365	9593	NR	495	138088	NR	625	337439	NR	755	17413	NR	885	13768	NR
370	10476	NR	500	166483	NR	630	313667	NR	760	16262	NR	890	11509	NR
375	11916	NR	505	198126	NR	635	289634	NR	765	14555	NR	895	10746	NR
380	10857	NR	510	225943	NR	640	267120	NR	770	13516	NR	900	11526	NR
385	9836	NR	515	249652	NR	645	244025	NR	775	12156	NR	905	11085	NR
390	9329	NR	520	270963	NR	650	221090	NR	780	11138	NR	910	12484	NR
395	8104	NR	525	285863	NR	655	198958	NR	785	10805	NR	915	12235	NR
400	6858	NR	530	297396	NR	660	178676	NR	790	10121	NR	920	9666	NR
405	6914	NR	535	307535	NR	665	155862	NR	795	10392	NR	925	11659	NR
410	8077	NR	540	315948	NR	670	138150	NR	800	9549	NR	930	12967	NR
415	11717	NR	545	324499	NR	675	120142	NR	805	10057	NR	935	13555	NR
420	19513	NR	550	333620	NR	680	105107	NR	810	9285	NR	940	12553	NR
425	34423	NR	555	345725	NR	685	91191	NR	815	9751	NR	945	9165	NR
430	59393	NR	560	355808	NR	690	79275	NR	820	10216	NR	950	7624	NR
435	101278	NR	565	369262	NR	695	68358	NR	825	10410	NR	955	11686	NR
440	162827	NR	570	381413	NR	700	60050	NR	830	10058	NR	960	9106	NR
445	260438	NR	575	393089	NR	705	51990	NR	835	9982	NR	965	11345	NR
450	399252	NR	580	402225	NR	710	46653	NR	840	9215	NR	970	10672	NR
455	445742	NR	585	409494	NR	715	42391	NR	845	11311	NR	975	11689	NR
460	330661	NR	590	413322	NR	720	37628	NR	850	10813	NR	980	14054	NR
465	233593	NR	595	413160	NR	725	33220	NR	855	11652	NR	985	17684	NR
470	187643	NR	600	408148	NR	730	29243	NR	860	11468	NR	990	17244	NR
475	140648	NR	605	401766	NR	735	25806	NR	865	12591	NR	995	11439	NR
480	111871	NR	610	390821	NR	740	23374	NR	870	9925	NR	1000	19016	NR
485	108472	NR	615	377363	NR	745	21294	NR	875	11284	NR			

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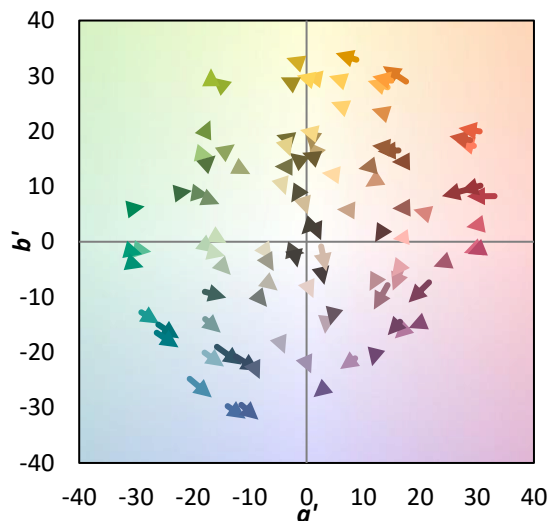
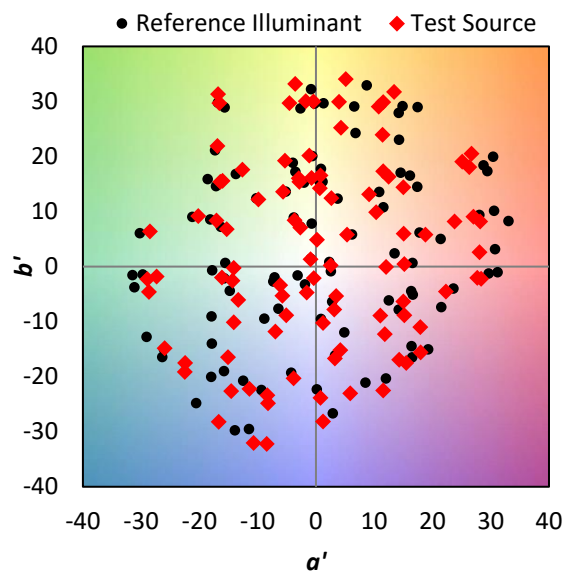
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Summary

$R_f = 82.9$
 $R_g = 95$
 $CIE R_a = 82.0$
 $R_9 = 8.2$



Color Vector Graphics



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

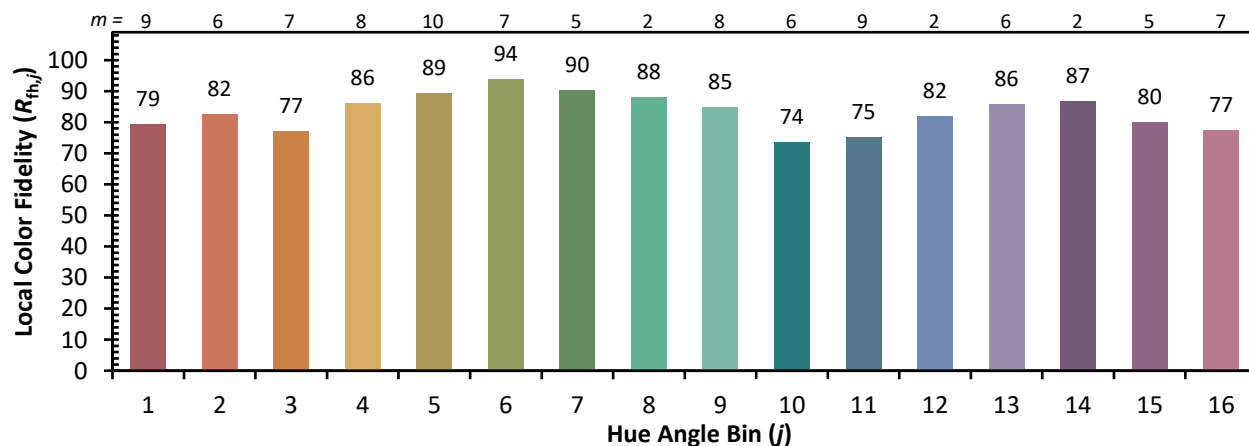
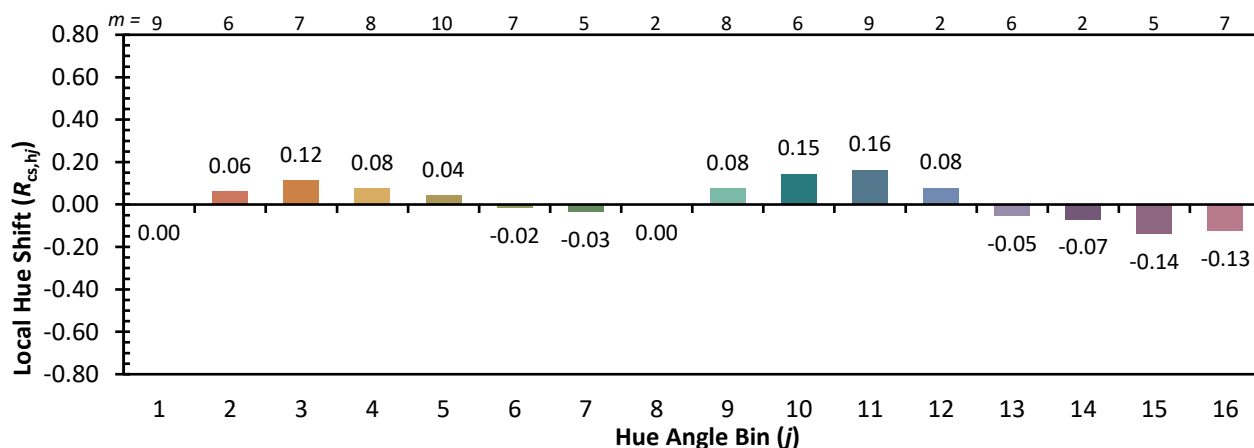
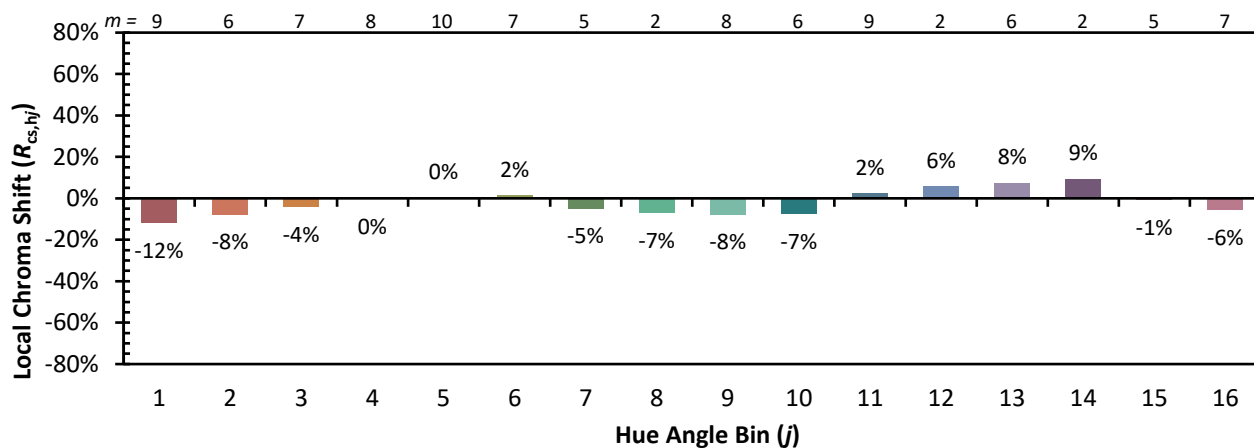
CES01 = 86	CES26 = 81	CES51 = 92	CES76 = 73
CES02 = 61	CES27 = 92	CES52 = 92	CES77 = 81
CES03 = 31	CES28 = 90	CES53 = 88	CES78 = 72
CES04 = 70	CES29 = 88	CES54 = 89	CES79 = 91
CES05 = 48	CES30 = 92	CES55 = 86	CES80 = 88
CES06 = 50	CES31 = 89	CES56 = 83	CES81 = 82
CES07 = 41	CES32 = 80	CES57 = 82	CES82 = 95
CES08 = 40	CES33 = 96	CES58 = 82	CES83 = 96
CES09 = 29	CES34 = 85	CES59 = 90	CES84 = 90
CES10 = 74	CES35 = 91	CES60 = 89	CES85 = 78
CES11 = 57	CES36 = 80	CES61 = 85	CES86 = 76
CES12 = 63	CES37 = 90	CES62 = 80	CES87 = 84
CES13 = 42	CES38 = 87	CES63 = 81	CES88 = 89
CES14 = 74	CES39 = 98	CES64 = 74	CES89 = 78
CES15 = 71	CES40 = 96	CES65 = 74	CES90 = 90
CES16 = 47	CES41 = 97	CES66 = 69	CES91 = 69
CES17 = 49	CES42 = 91	CES67 = 68	CES92 = 65
CES18 = 56	CES43 = 89	CES68 = 75	CES93 = 79
CES19 = 71	CES44 = 99	CES69 = 80	CES94 = 64
CES20 = 65	CES45 = 93	CES70 = 71	CES95 = 72
CES21 = 86	CES46 = 91	CES71 = 63	CES96 = 84
CES22 = 78	CES47 = 96	CES72 = 88	CES97 = 90
CES23 = 91	CES48 = 85	CES73 = 65	CES98 = 85
CES24 = 90	CES49 = 90	CES74 = 90	CES99 = 77
CES25 = 71	CES50 = 93	CES75 = 67	



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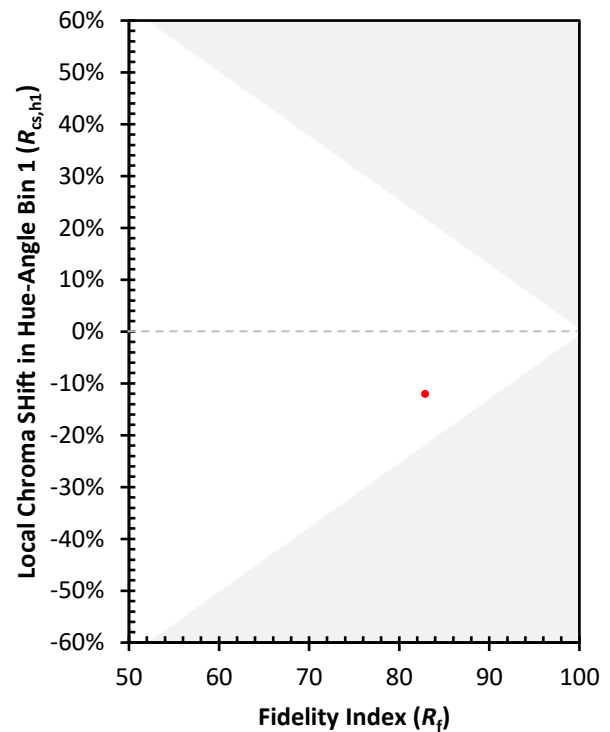
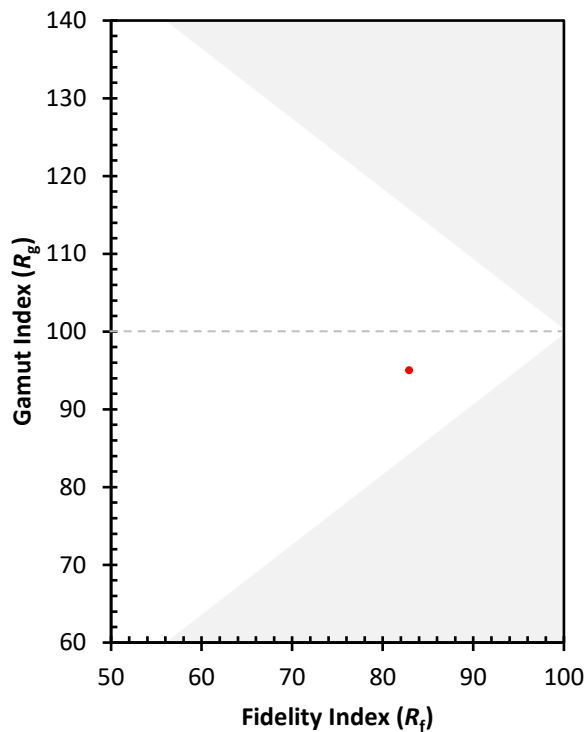
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)