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: STREETWORKS

Report Number: P870563

Luminaire Tested: **MEM2-HSN-SA-110-840-U-5MQ**

Issue Date: 09/05/2024

Report Generated By 670245763

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:	P870563
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	09/05/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	MEM2-HSN-SA-110-840-U-5MQ
Description:	EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 110W 80CRI 4000K FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source:	(30) 4000K CCT, 80 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	16635.6 lumens
Efficiency:	N/A
Efficacy:	147.2 lumens/watt
Luminous Opening:	Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G2

Input Watts (W):	113
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	7.77%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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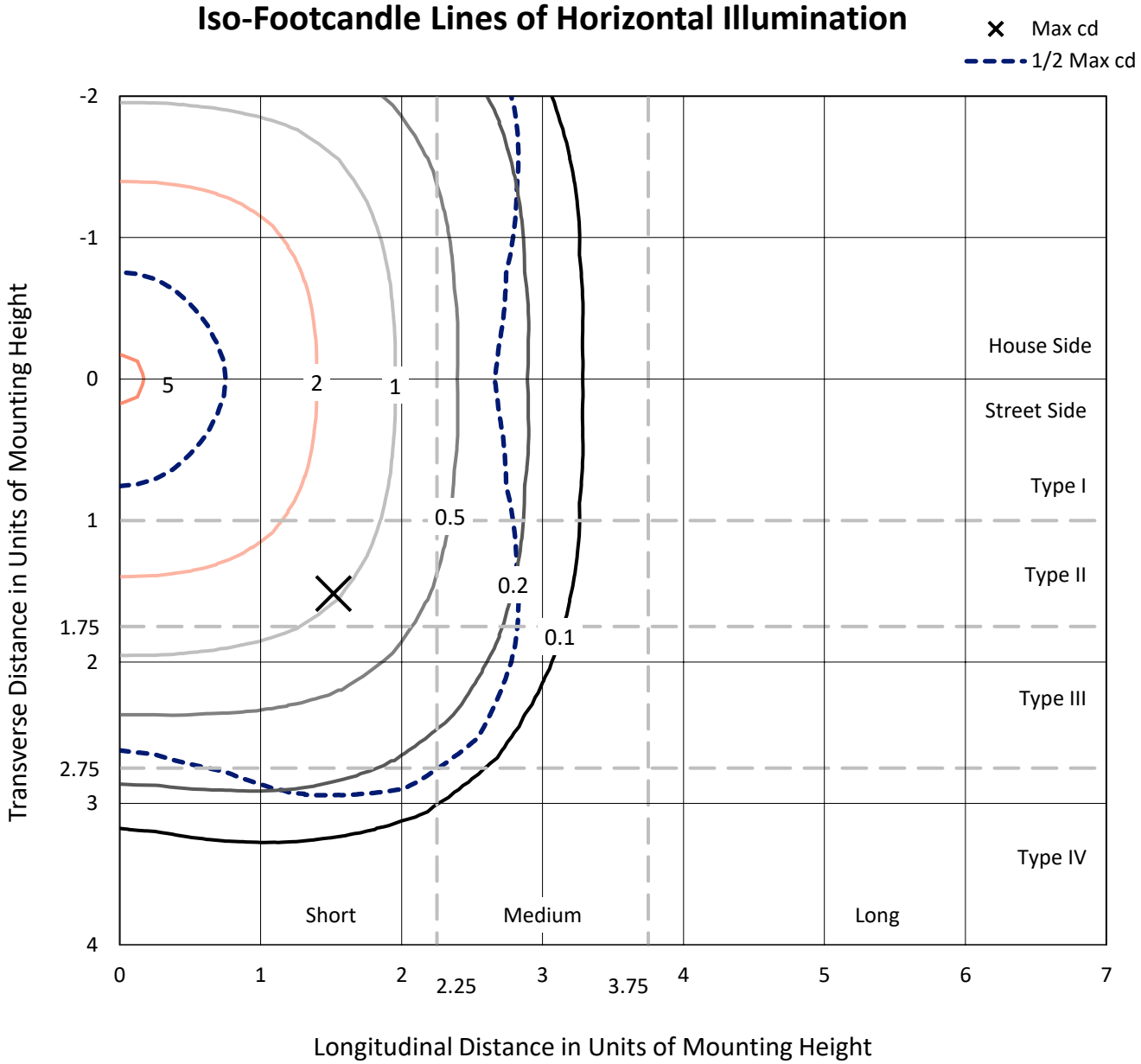
Scaled Data Report

REPORT NUMBER: P870563
CATALOG NUMBER: MEM2-HSN-SA-110-840-U-5MQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 20 foot mounting height. Maximum calculated value = 5.2 fc
Type V - Short - N/A

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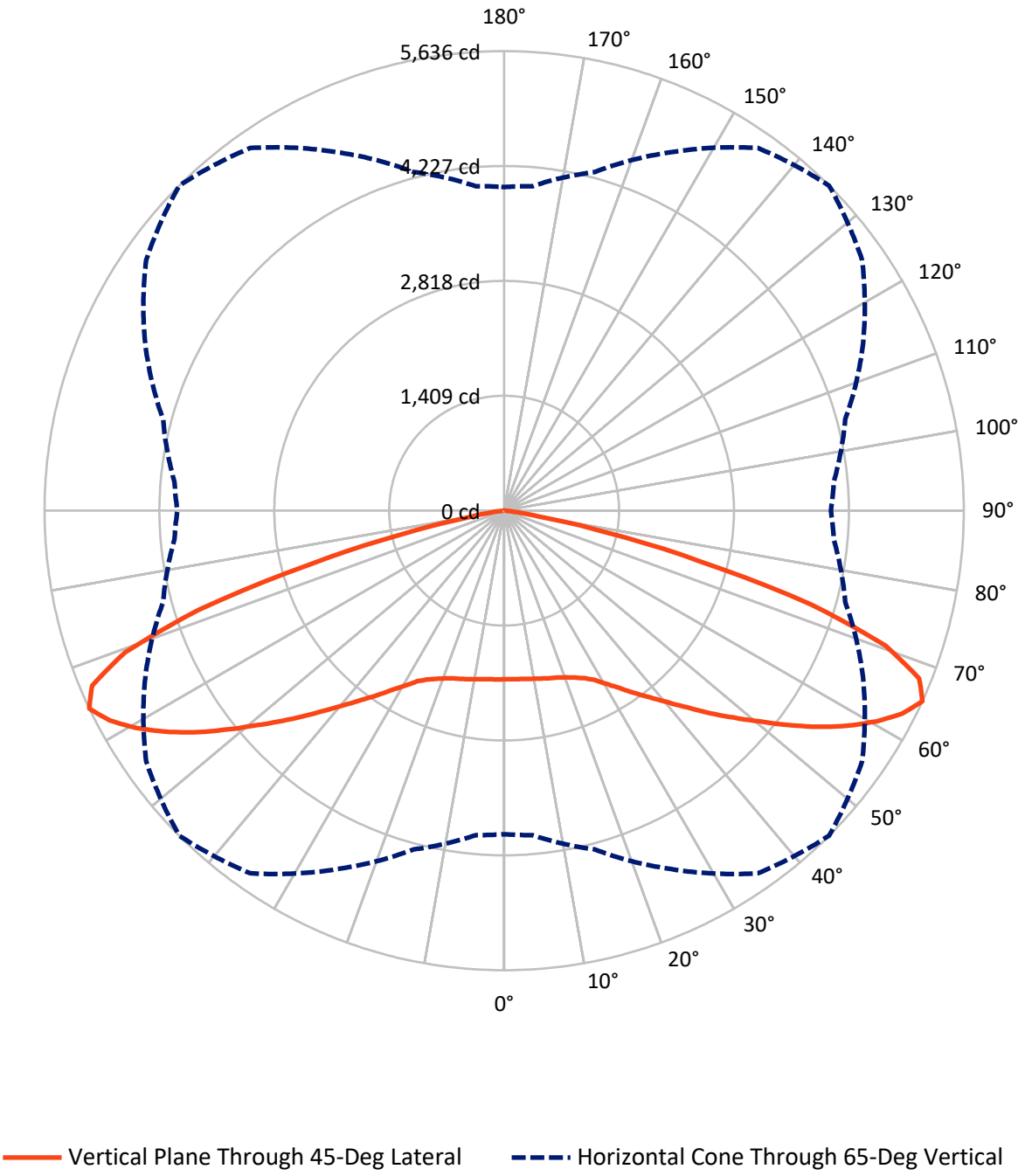
REPORT NUMBER: P870563
CATALOG NUMBER: MEM2-HSN-SA-110-840-U-5MQ

Luminous Intensity Polar Plot



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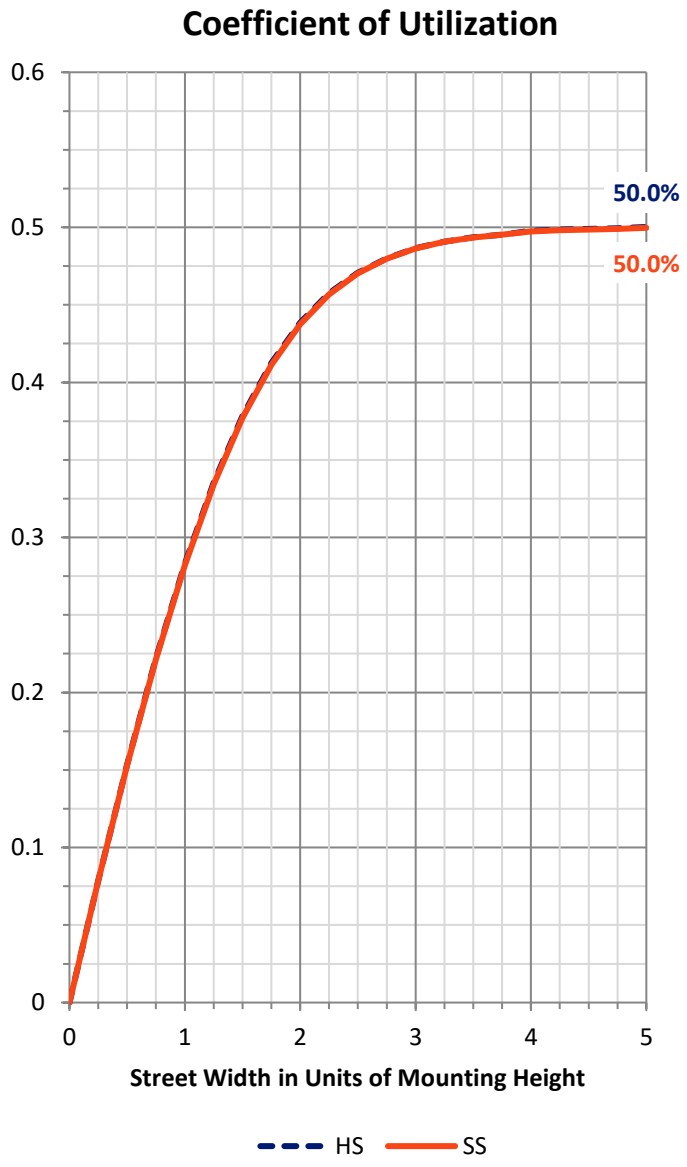
REPORT NUMBER: P870563
CATALOG NUMBER: MEM2-HSN-SA-110-840-U-5MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	8317.8	0.0	8317.8
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	8317.8	0.0	8317.8
	% Fixture	50.0	0.0	50.0
Total	Lumens	16635.6	0.0	16635.6
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	198.7	1.2
10°-20°	605.0	3.6
20°-30°	1064.2	6.4
30°-40°	1721.1	10.3
40°-50°	2680.8	16.1
50°-60°	3920.0	23.6
60°-70°	4514.0	27.1
70°-80°	1843.6	11.1
80°-90°	88.2	0.5
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°-90°	16635.6	100.0
0°-180°	16635.6	100.0



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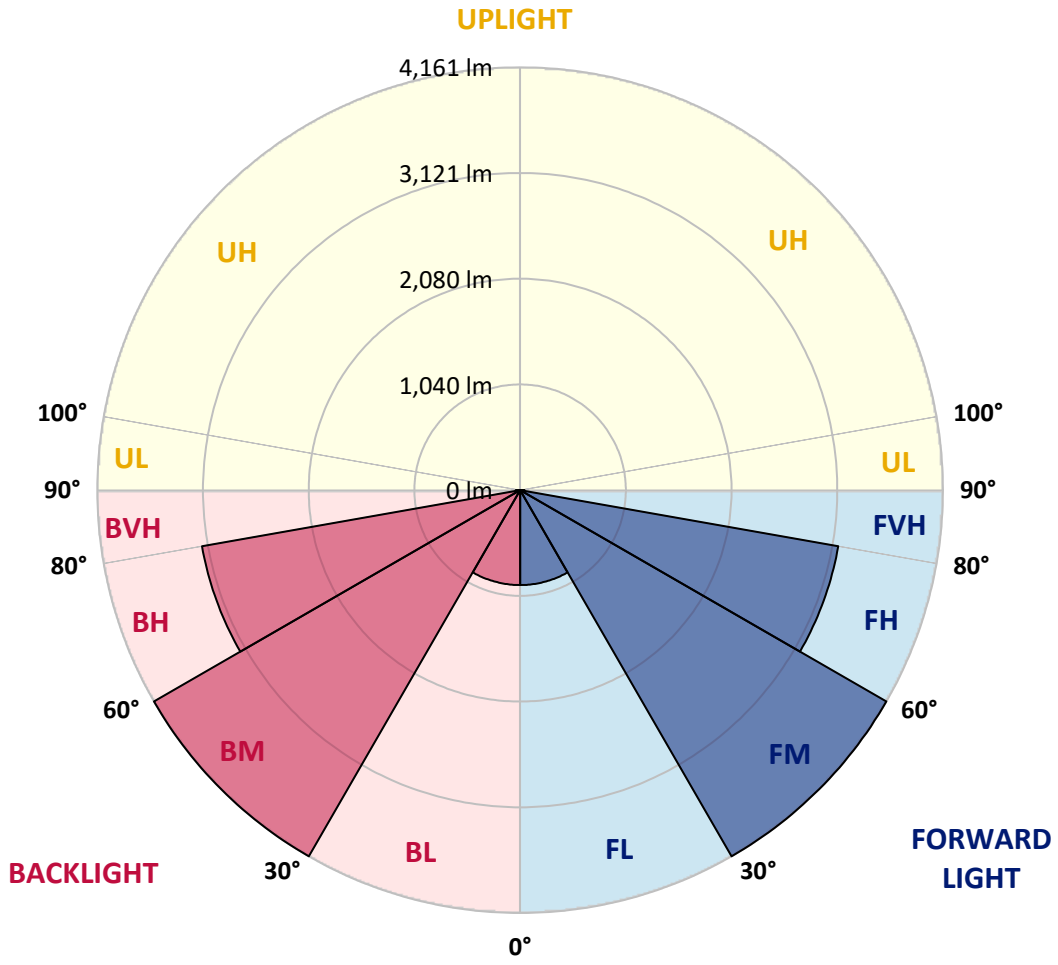
REPORT NUMBER: P870563
CATALOG NUMBER: MEM2-HSN-SA-110-840-U-5MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	934.0	5.6			
FM	(30°-60°)	4160.9	25.0			
FH	(60°-80°)	3178.8	19.1			G2/5000
FVH	(80°-90°)	44.1	0.3			G1/100
BL	(0°-30°)	934.0	5.6	B2/1000		
BM	(30°-60°)	4160.9	25.0	B3/5000		
BH	(60°-80°)	3178.8	19.1	B4/5000		G2/5000
BVH	(80°-90°)	44.1	0.3			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G2
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2067.1	2067.1	2067.1	2067.1	2067.1	2067.1	2067.1	2067.1	2067.1	2067.1	2067.1
2.5°	2073.5	2073.5	2070.3	2070.3	2063.9	2070.3	2067.1	2070.3	2067.1	2067.1	2070.3
5°	2079.8	2079.8	2073.5	2076.6	2070.3	2073.5	2070.3	2076.6	2073.5	2070.3	2076.6
7.5°	2089.4	2089.4	2083.0	2086.2	2079.8	2083.0	2079.8	2086.2	2083.0	2083.0	2086.2
10°	2099.0	2102.2	2095.8	2092.6	2092.6	2095.8	2099.0	2102.2	2099.0	2099.0	2105.4
12.5°	2115.0	2118.2	2111.8	2108.6	2108.6	2111.8	2115.0	2121.4	2111.8	2111.8	2111.8
15°	2131.0	2131.0	2127.8	2124.6	2127.8	2131.0	2131.0	2137.4	2131.0	2124.6	2124.6
17.5°	2137.4	2140.5	2137.4	2143.7	2146.9	2150.1	2153.3	2153.3	2143.7	2140.5	2140.5
20°	2159.7	2162.9	2156.5	2159.7	2169.3	2182.1	2182.1	2182.1	2182.1	2172.5	2172.5
22.5°	2198.1	2201.2	2198.1	2198.1	2210.8	2223.6	2223.6	2233.2	2220.4	2214.0	2214.0
25°	2261.9	2261.9	2258.8	2261.9	2268.3	2274.7	2287.5	2293.9	2293.9	2290.7	2293.9
27.5°	2338.6	2341.8	2338.6	2338.6	2335.4	2348.2	2367.4	2377.0	2380.2	2383.4	2383.4
30°	2440.9	2447.3	2444.1	2447.3	2453.6	2463.2	2469.6	2472.8	2472.8	2466.4	2466.4
32.5°	2552.7	2559.1	2552.7	2568.7	2591.0	2591.0	2584.6	2597.4	2587.8	2581.4	2575.0
35°	2683.7	2683.7	2690.1	2696.4	2728.4	2744.4	2744.4	2738.0	2718.8	2709.2	2715.6
37.5°	2833.8	2837.0	2843.4	2846.6	2875.4	2904.1	2900.9	2884.9	2862.6	2837.0	2837.0
40°	3012.7	3006.3	3009.5	3031.9	3054.3	3089.4	3092.6	3070.2	3031.9	3006.3	3006.3
42.5°	3175.7	3178.9	3191.6	3220.4	3271.5	3300.3	3284.3	3246.0	3204.4	3172.5	3169.3
45°	3348.2	3345.0	3380.1	3440.8	3507.9	3543.1	3517.5	3463.2	3399.3	3357.8	3357.8
47.5°	3523.9	3520.7	3578.2	3677.3	3763.5	3792.3	3766.7	3696.4	3610.2	3549.5	3539.9
50°	3706.0	3718.8	3779.5	3920.1	4031.9	4063.8	4031.9	3939.2	3824.2	3744.4	3731.6
52.5°	3913.7	3923.3	4003.1	4156.5	4293.9	4367.4	4319.4	4182.1	4035.1	3939.2	3926.5
55°	4105.4	4111.8	4226.8	4412.1	4581.4	4680.4	4603.8	4428.1	4242.8	4121.3	4108.6
57.5°	4239.6	4255.5	4402.5	4642.1	4859.4	4974.4	4859.4	4670.9	4424.9	4274.7	4265.1
60°	4325.8	4351.4	4520.7	4821.0	5121.3	5245.9	5127.7	4865.7	4562.2	4367.4	4357.8
62.5°	4281.1	4316.2	4533.5	4926.4	5345.0	5479.2	5325.8	4958.4	4546.3	4300.3	4274.7
65°	3968.0	3993.6	4300.3	4849.8	5428.0	5635.7	5357.8	4856.2	4329.0	4057.5	4006.3
67.5°	3319.4	3364.2	3769.9	4479.2	5249.1	5488.7	5137.3	4488.8	3853.0	3520.7	3463.2
70°	2549.5	2629.4	3073.4	3843.4	4690.0	4961.6	4575.0	3789.1	3041.5	2702.8	2597.4
72.5°	1472.8	1597.4	2249.2	3000.0	3731.6	3936.0	3392.9	2648.5	2019.1	1779.5	1750.8
75°	488.8	533.5	1070.3	1728.4	2380.2	2482.4	2121.4	1670.9	1329.1	1137.4	1146.9
77.5°	239.6	239.6	322.7	632.6	1083.1	1277.9	1159.7	808.3	581.5	440.9	428.1
80°	191.7	191.7	223.6	309.9	364.2	428.1	364.2	265.2	217.2	198.1	207.7
82.5°	92.7	89.5	105.4	150.2	153.4	147.0	137.4	137.4	131.0	121.4	118.2
85°	6.4	6.4	12.8	28.8	47.9	63.9	73.5	70.3	67.1	57.5	63.9
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	6.4	6.4	6.4	6.4
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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LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-8

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-30-840-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-30-840-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

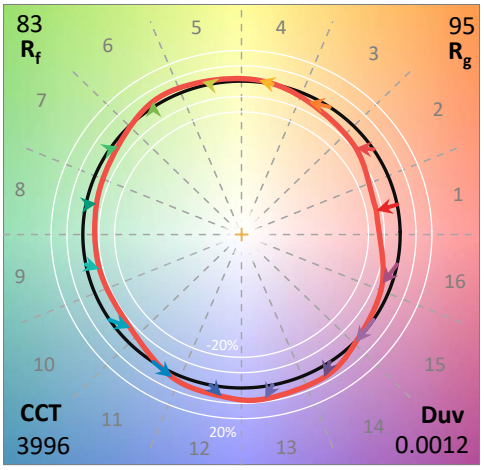
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-157-8
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/05/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-SA-30-840-U-5WQ**
Description:	Epic Modern Light Square 30W 5WQ Optic

Spectral Parameters

CCT (K):	3996
CIE u':	0.2245
CIE v':	0.5031
Duv:	0.0012
CIE x:	0.3815
CIE y:	0.3799
CIE z:	0.2386
Peak Wavelength (nm):	449
Dominant Wavelength (nm):	578
Purity:	28.49233
Rf:	82.6
Rg:	95.1

CRI (Ra):	80.6
R1:	78.1
R2:	87.1
R3:	94.5
R4:	79.7
R5:	78.7
R6:	82.7
R7:	84.3
R8:	59.5
R9:	-5.8
R10:	70.3
R11:	78.7
R12:	60.5
R13:	80.2
R14:	97.2
R15:	70.6



Test Conditions

Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	24.3

REPORT NUMBER: SP1-2407-157-8

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

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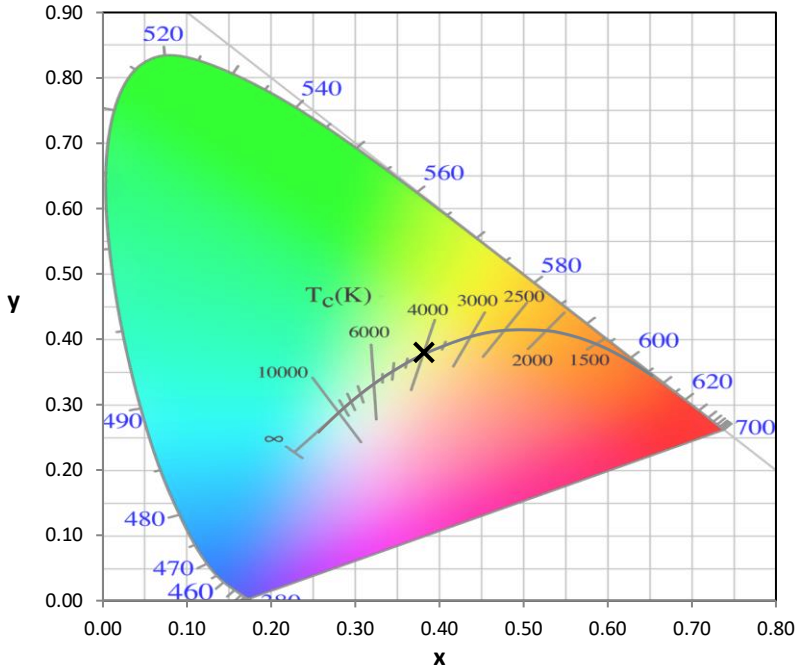
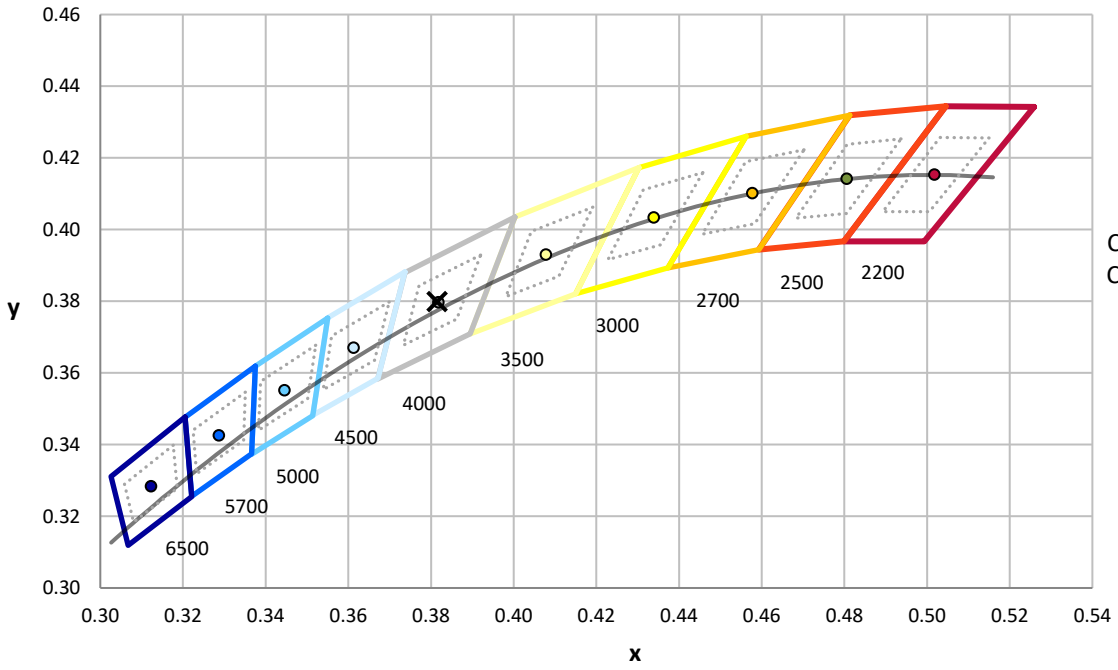
CIE 1931 Chromaticity Diagram



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



CCT = 3996K
CIE x = 0.3815
CIE y = 0.3799
Duv = 0.0012

Point lies inside the ANSI 4000K 4-step quadrangle

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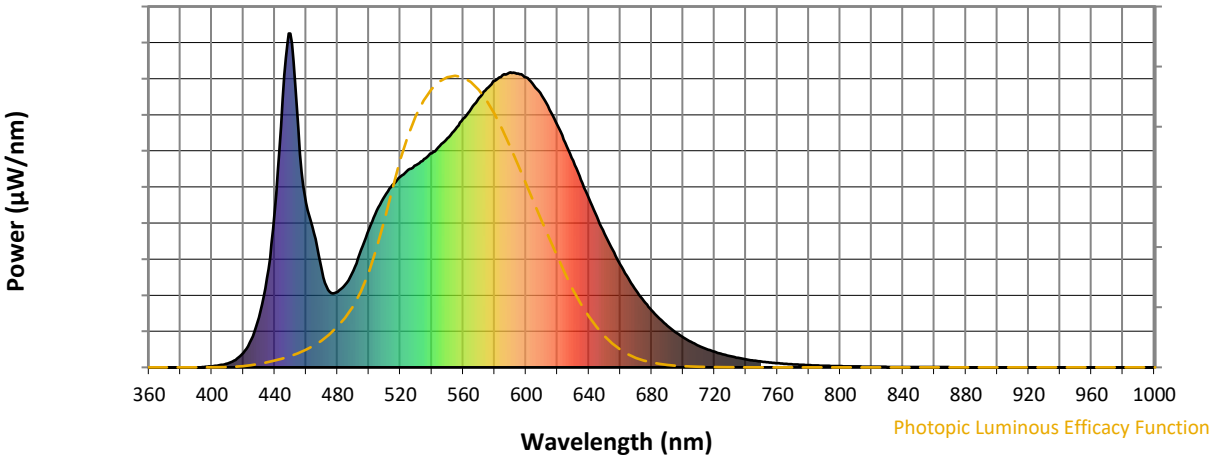
Photopic Flux vs. Wavelength

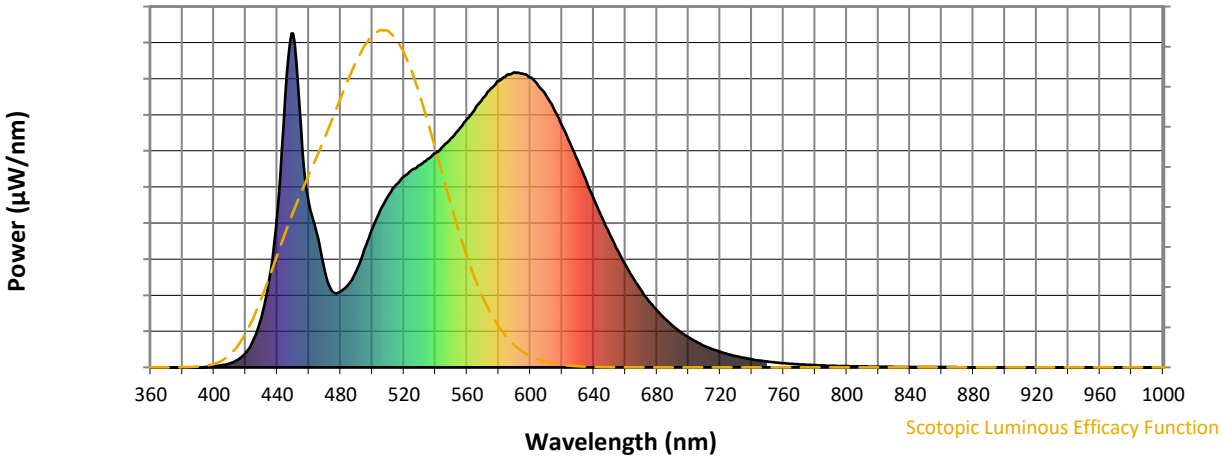


Photopic Lumens: NR

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	289	NR	620	725	NR	750	17	NR	880	0	NR
365	0	NR	495	351	NR	625	673	NR	755	15	NR	885	0	NR
370	0	NR	500	414	NR	630	619	NR	760	13	NR	890	0	NR
375	0	NR	505	470	NR	635	562	NR	765	11	NR	895	0	NR
380	0	NR	510	513	NR	640	506	NR	770	9	NR	900	0	NR
385	0	NR	515	546	NR	645	452	NR	775	8	NR	905	0	NR
390	0	NR	520	571	NR	650	400	NR	780	7	NR	910	0	NR
395	1	NR	525	592	NR	655	352	NR	785	6	NR	915	0	NR
400	3	NR	530	606	NR	660	307	NR	790	5	NR	920	0	NR
405	6	NR	535	624	NR	665	267	NR	795	4	NR	925	0	NR
410	12	NR	540	642	NR	670	231	NR	800	4	NR	930	0	NR
415	22	NR	545	663	NR	675	199	NR	805	3	NR	935	0	NR
420	44	NR	550	686	NR	680	171	NR	810	3	NR	940	0	NR
425	83	NR	555	713	NR	685	146	NR	815	2	NR	945	0	NR
430	150	NR	560	745	NR	690	125	NR	820	2	NR	950	0	NR
435	267	NR	565	774	NR	695	106	NR	825	2	NR	955	0	NR
440	466	NR	570	806	NR	700	90	NR	830	1	NR	960	0	NR
445	804	NR	575	835	NR	705	76	NR	835	1	NR	965	0	NR
450	1000	NR	580	858	NR	710	65	NR	840	1	NR	970	0	NR
455	715	NR	585	875	NR	715	55	NR	845	1	NR	975	0	NR
460	492	NR	590	884	NR	720	47	NR	850	1	NR	980	0	NR
465	402	NR	595	880	NR	725	40	NR	855	1	NR	985	0	NR
470	288	NR	600	868	NR	730	34	NR	860	1	NR	990	0	NR
475	226	NR	605	844	NR	735	28	NR	865	1	NR	995	0	NR
480	227	NR	610	814	NR	740	24	NR	870	0	NR	1000	0	NR
485	248	NR	615	771	NR	745	20	NR	875	0	NR			

REPORT NUMBER: SP1-2407-157-8

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.66**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	289	NR	620	725	NR	750	17	NR	880	0	NR
365	0	NR	495	351	NR	625	673	NR	755	15	NR	885	0	NR
370	0	NR	500	414	NR	630	619	NR	760	13	NR	890	0	NR
375	0	NR	505	470	NR	635	562	NR	765	11	NR	895	0	NR
380	0	NR	510	513	NR	640	506	NR	770	9	NR	900	0	NR
385	0	NR	515	546	NR	645	452	NR	775	8	NR	905	0	NR
390	0	NR	520	571	NR	650	400	NR	780	7	NR	910	0	NR
395	1	NR	525	592	NR	655	352	NR	785	6	NR	915	0	NR
400	3	NR	530	606	NR	660	307	NR	790	5	NR	920	0	NR
405	6	NR	535	624	NR	665	267	NR	795	4	NR	925	0	NR
410	12	NR	540	642	NR	670	231	NR	800	4	NR	930	0	NR
415	22	NR	545	663	NR	675	199	NR	805	3	NR	935	0	NR
420	44	NR	550	686	NR	680	171	NR	810	3	NR	940	0	NR
425	83	NR	555	713	NR	685	146	NR	815	2	NR	945	0	NR
430	150	NR	560	745	NR	690	125	NR	820	2	NR	950	0	NR
435	267	NR	565	774	NR	695	106	NR	825	2	NR	955	0	NR
440	466	NR	570	806	NR	700	90	NR	830	1	NR	960	0	NR
445	804	NR	575	835	NR	705	76	NR	835	1	NR	965	0	NR
450	1000	NR	580	858	NR	710	65	NR	840	1	NR	970	0	NR
455	715	NR	585	875	NR	715	55	NR	845	1	NR	975	0	NR
460	492	NR	590	884	NR	720	47	NR	850	1	NR	980	0	NR
465	402	NR	595	880	NR	725	40	NR	855	1	NR	985	0	NR
470	288	NR	600	868	NR	730	34	NR	860	1	NR	990	0	NR
475	226	NR	605	844	NR	735	28	NR	865	1	NR	995	0	NR
480	227	NR	610	814	NR	740	24	NR	870	0	NR	1000	0	NR
485	248	NR	615	771	NR	745	20	NR	875	0	NR			

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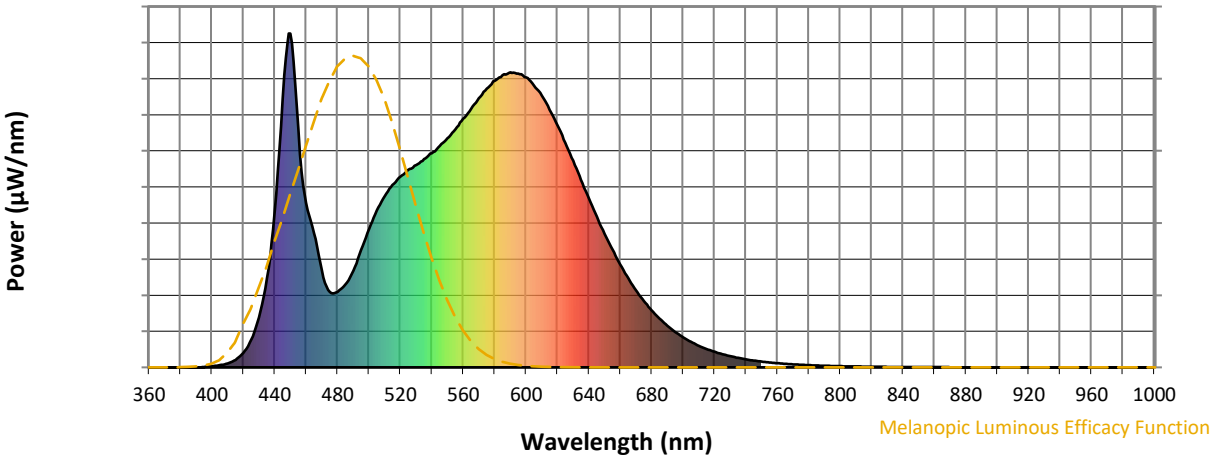
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 3.37**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	289	NR	620	725	NR	750	17	NR	880	0	NR
365	0	NR	495	351	NR	625	673	NR	755	15	NR	885	0	NR
370	0	NR	500	414	NR	630	619	NR	760	13	NR	890	0	NR
375	0	NR	505	470	NR	635	562	NR	765	11	NR	895	0	NR
380	0	NR	510	513	NR	640	506	NR	770	9	NR	900	0	NR
385	0	NR	515	546	NR	645	452	NR	775	8	NR	905	0	NR
390	0	NR	520	571	NR	650	400	NR	780	7	NR	910	0	NR
395	1	NR	525	592	NR	655	352	NR	785	6	NR	915	0	NR
400	3	NR	530	606	NR	660	307	NR	790	5	NR	920	0	NR
405	6	NR	535	624	NR	665	267	NR	795	4	NR	925	0	NR
410	12	NR	540	642	NR	670	231	NR	800	4	NR	930	0	NR
415	22	NR	545	663	NR	675	199	NR	805	3	NR	935	0	NR
420	44	NR	550	686	NR	680	171	NR	810	3	NR	940	0	NR
425	83	NR	555	713	NR	685	146	NR	815	2	NR	945	0	NR
430	150	NR	560	745	NR	690	125	NR	820	2	NR	950	0	NR
435	267	NR	565	774	NR	695	106	NR	825	2	NR	955	0	NR
440	466	NR	570	806	NR	700	90	NR	830	1	NR	960	0	NR
445	804	NR	575	835	NR	705	76	NR	835	1	NR	965	0	NR
450	1000	NR	580	858	NR	710	65	NR	840	1	NR	970	0	NR
455	715	NR	585	875	NR	715	55	NR	845	1	NR	975	0	NR
460	492	NR	590	884	NR	720	47	NR	850	1	NR	980	0	NR
465	402	NR	595	880	NR	725	40	NR	855	1	NR	985	0	NR
470	288	NR	600	868	NR	730	34	NR	860	1	NR	990	0	NR
475	226	NR	605	844	NR	735	28	NR	865	1	NR	995	0	NR
480	227	NR	610	814	NR	740	24	NR	870	0	NR	1000	0	NR
485	248	NR	615	771	NR	745	20	NR	875	0	NR			

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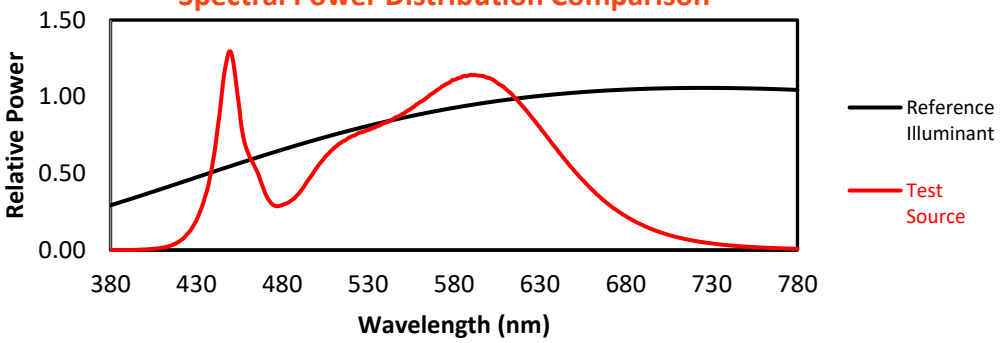
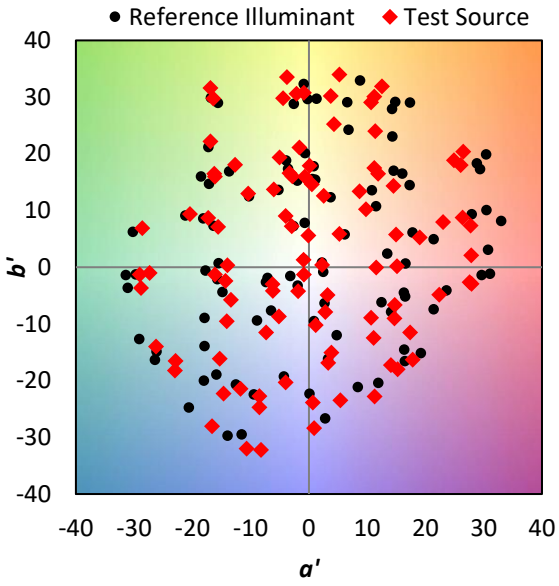
Summary

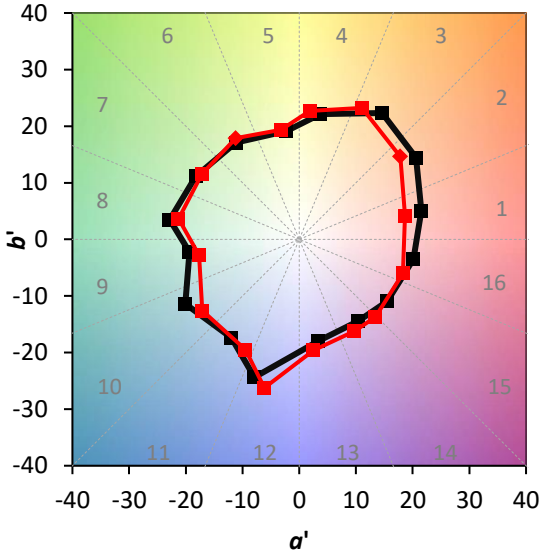
R_f = 82.6
R_g = 95.1
CIE R_a = 80.6
R_9 = -5.8

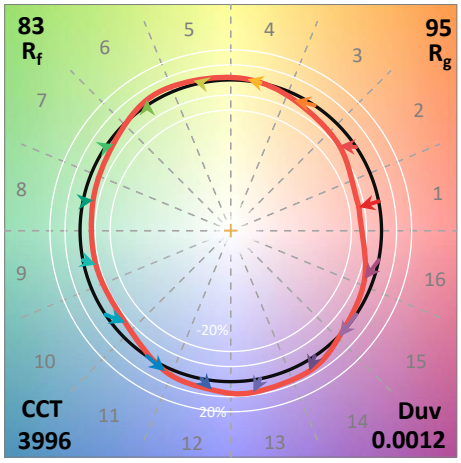
Spectral Power Distribution Comparison

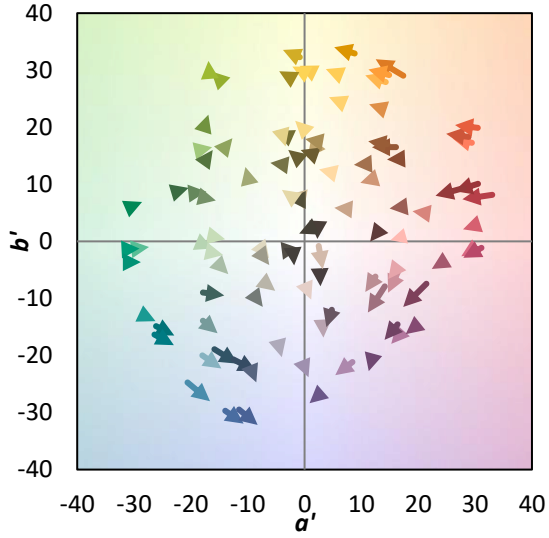


Color Vector Graphics









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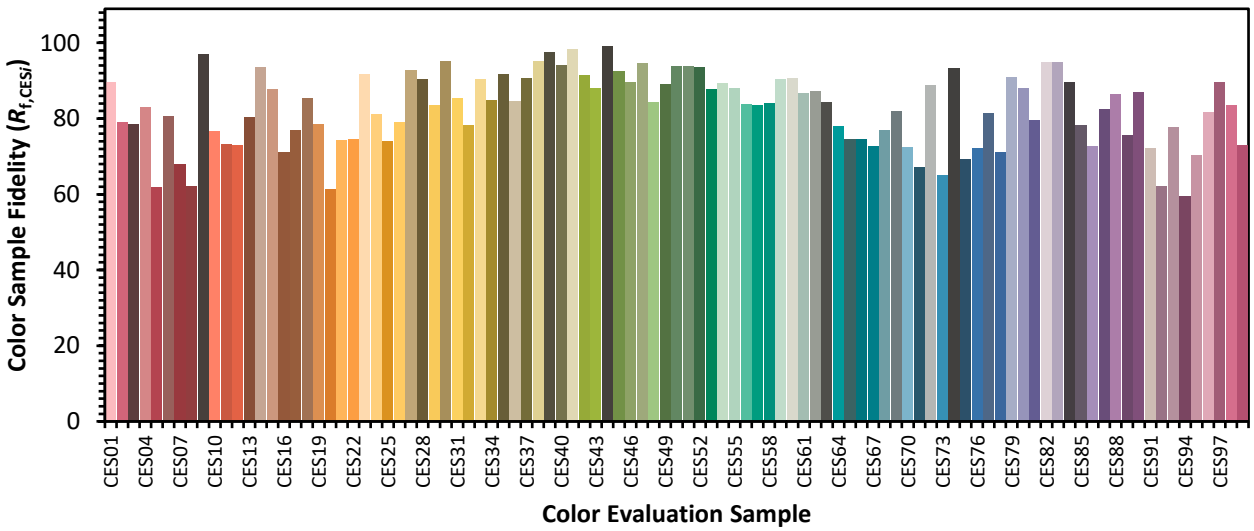
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 79	CES51 = 94	CES76 = 72
CES02 = 61	CES27 = 93	CES52 = 94	CES77 = 82
CES03 = 31	CES28 = 90	CES53 = 88	CES78 = 71
CES04 = 69	CES29 = 83	CES54 = 89	CES79 = 91
CES05 = 48	CES30 = 95	CES55 = 88	CES80 = 88
CES06 = 50	CES31 = 86	CES56 = 84	CES81 = 80
CES07 = 40	CES32 = 78	CES57 = 84	CES82 = 95
CES08 = 39	CES33 = 90	CES58 = 84	CES83 = 95
CES09 = 29	CES34 = 85	CES59 = 90	CES84 = 90
CES10 = 74	CES35 = 92	CES60 = 91	CES85 = 78
CES11 = 57	CES36 = 85	CES61 = 87	CES86 = 73
CES12 = 63	CES37 = 91	CES62 = 87	CES87 = 83
CES13 = 42	CES38 = 95	CES63 = 84	CES88 = 86
CES14 = 74	CES39 = 98	CES64 = 78	CES89 = 76
CES15 = 71	CES40 = 94	CES65 = 75	CES90 = 87
CES16 = 46	CES41 = 98	CES66 = 75	CES91 = 72
CES17 = 49	CES42 = 92	CES67 = 73	CES92 = 62
CES18 = 56	CES43 = 88	CES68 = 77	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 82	CES94 = 60
CES20 = 65	CES45 = 93	CES70 = 72	CES95 = 70
CES21 = 86	CES46 = 90	CES71 = 67	CES96 = 82
CES22 = 78	CES47 = 95	CES72 = 89	CES97 = 90
CES23 = 91	CES48 = 84	CES73 = 65	CES98 = 84
CES24 = 90	CES49 = 89	CES74 = 93	CES99 = 73
CES25 = 71	CES50 = 94	CES75 = 69	



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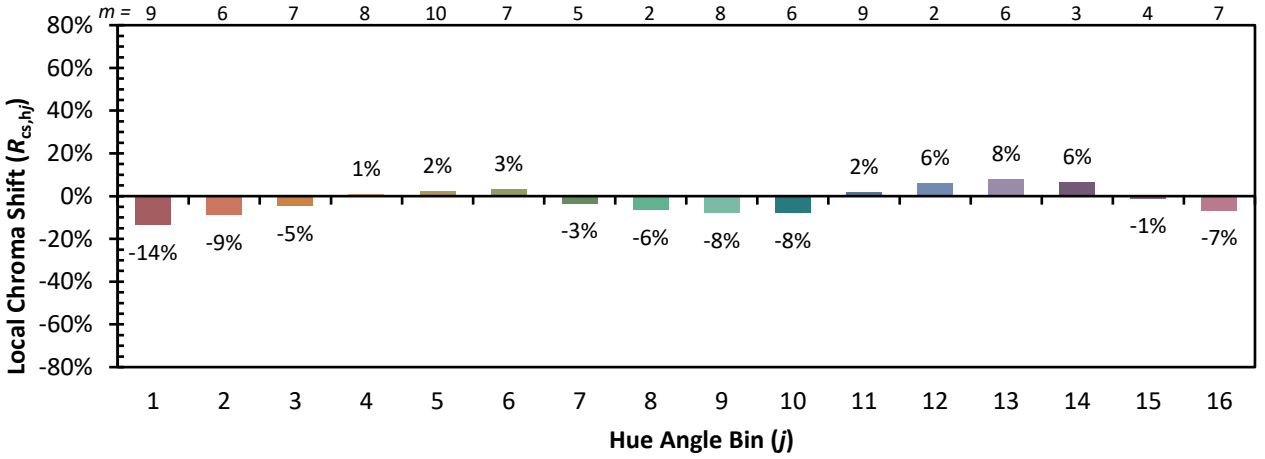
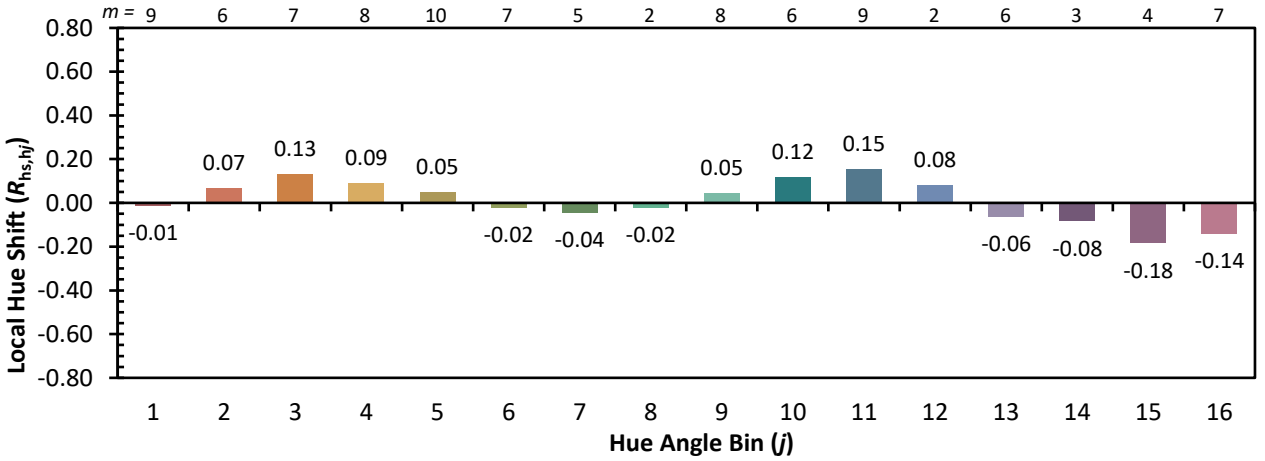
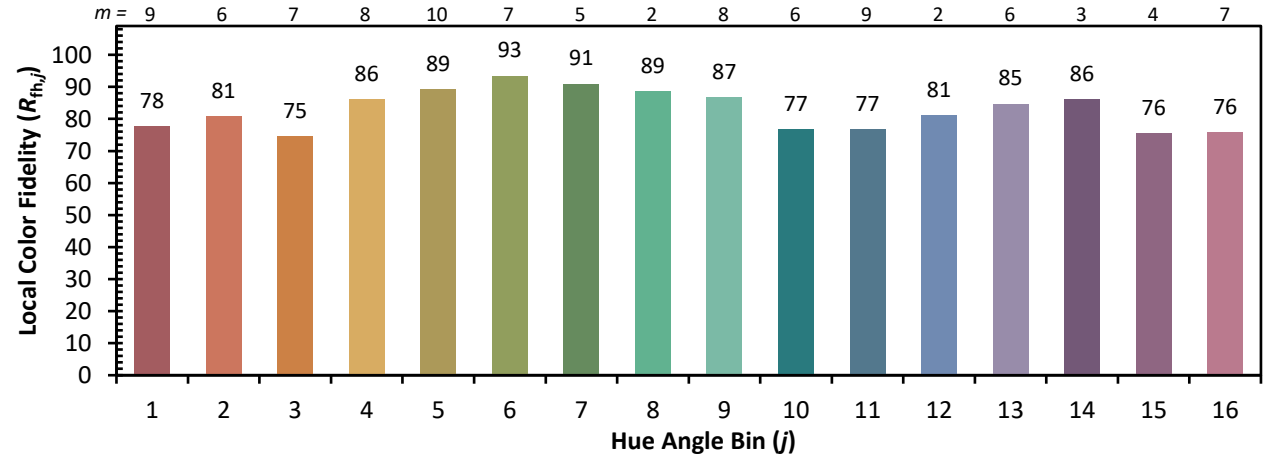
Color Rendition by Hue-Angle Bin







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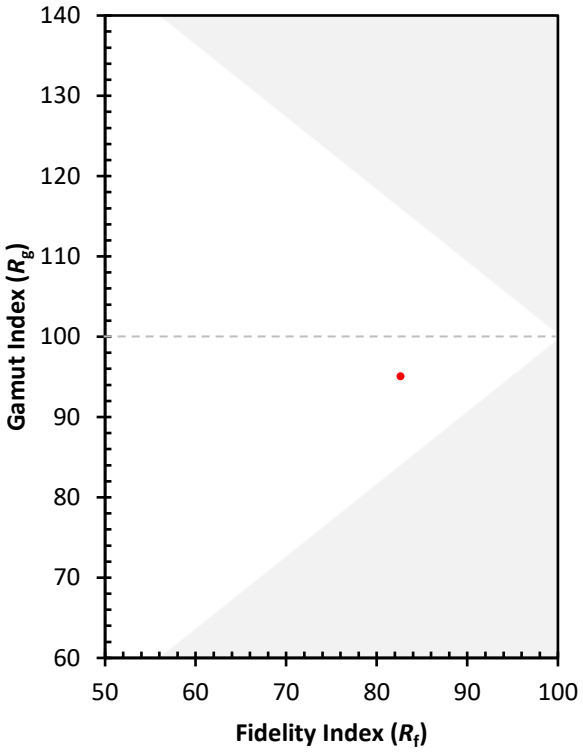
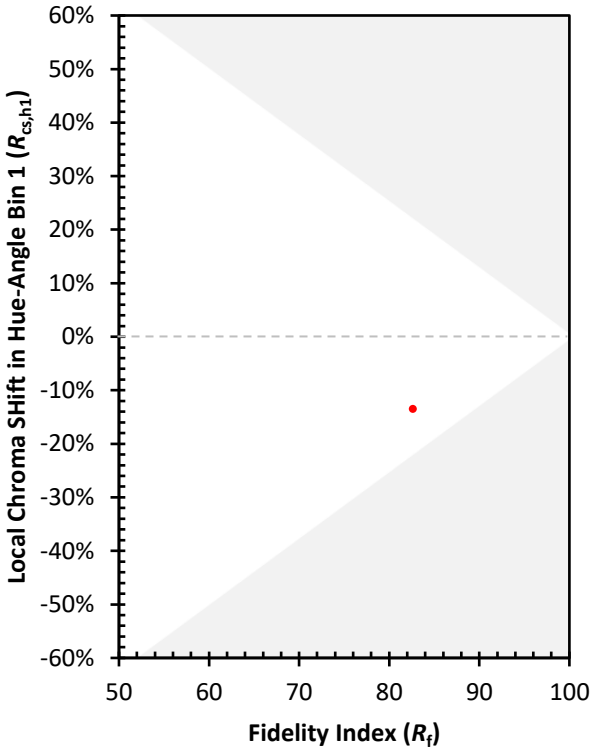
Measure Comparisons





(END OF REPORT)