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: INVUE

Report Number: P868750

Luminaire Tested: **EMM2-HTN-SA2C-740-U-T5W**

Issue Date: 08/22/2024

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:	P868750
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	08/22/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HTN-SA2C-740-U-T5W
Description:	EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 120W 70CRI 4000K FIXTURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC
Light Source:	(20) 4000K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	14208 lumens
Efficiency:	N/A
Efficacy:	140.7 lumens/watt
Luminous Opening:	Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G2

Input Watts (W):	101
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	9.45%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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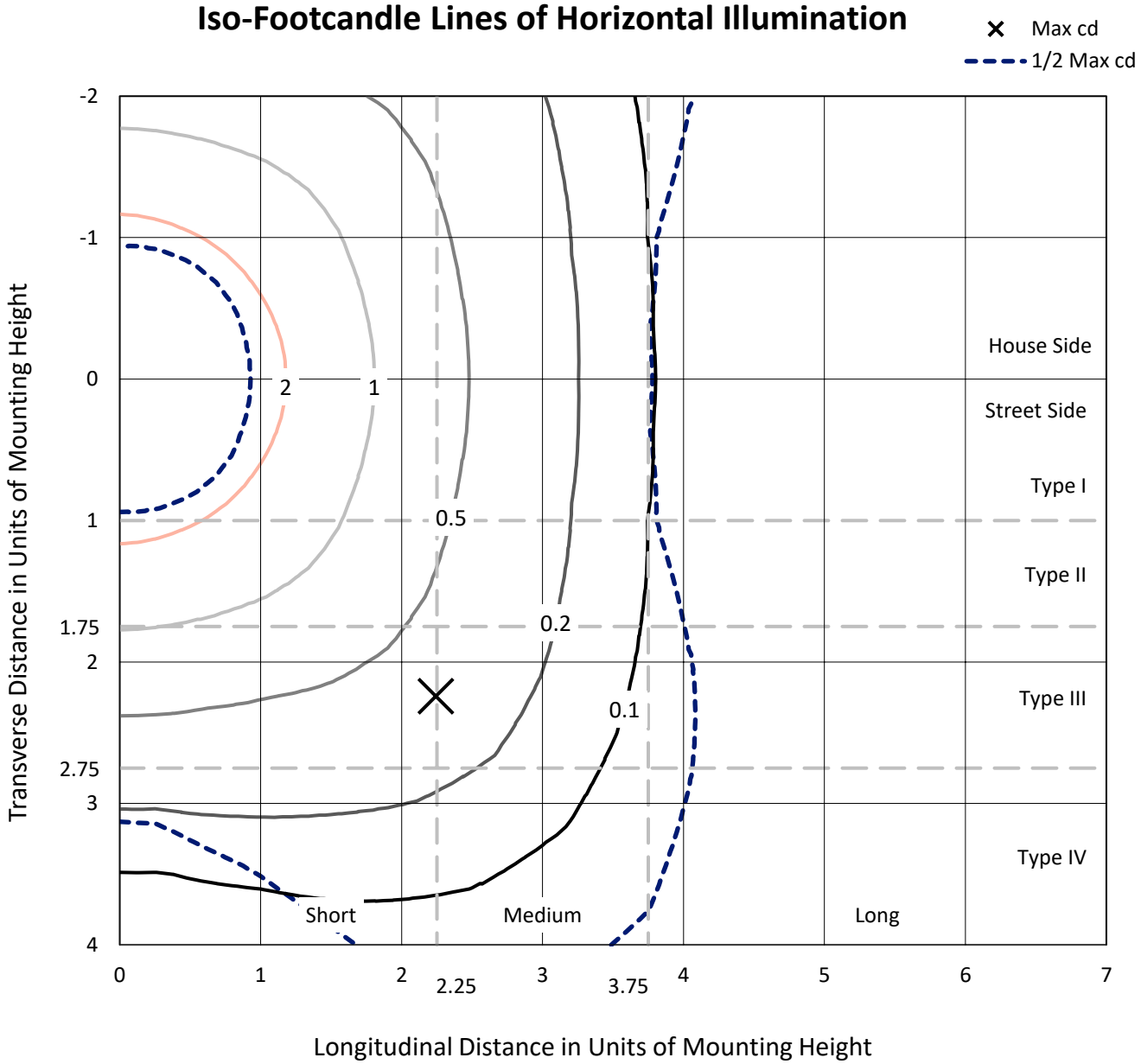
Scaled Data Report

REPORT NUMBER: P868750
CATALOG NUMBER: EMM2-HTN-SA2C-740-U-T5W

Iso-Footcandle Lines of Horizontal Illumination



Based on 20 foot mounting height. Maximum calculated value = 2.5 fc
Type V - Short - N/A

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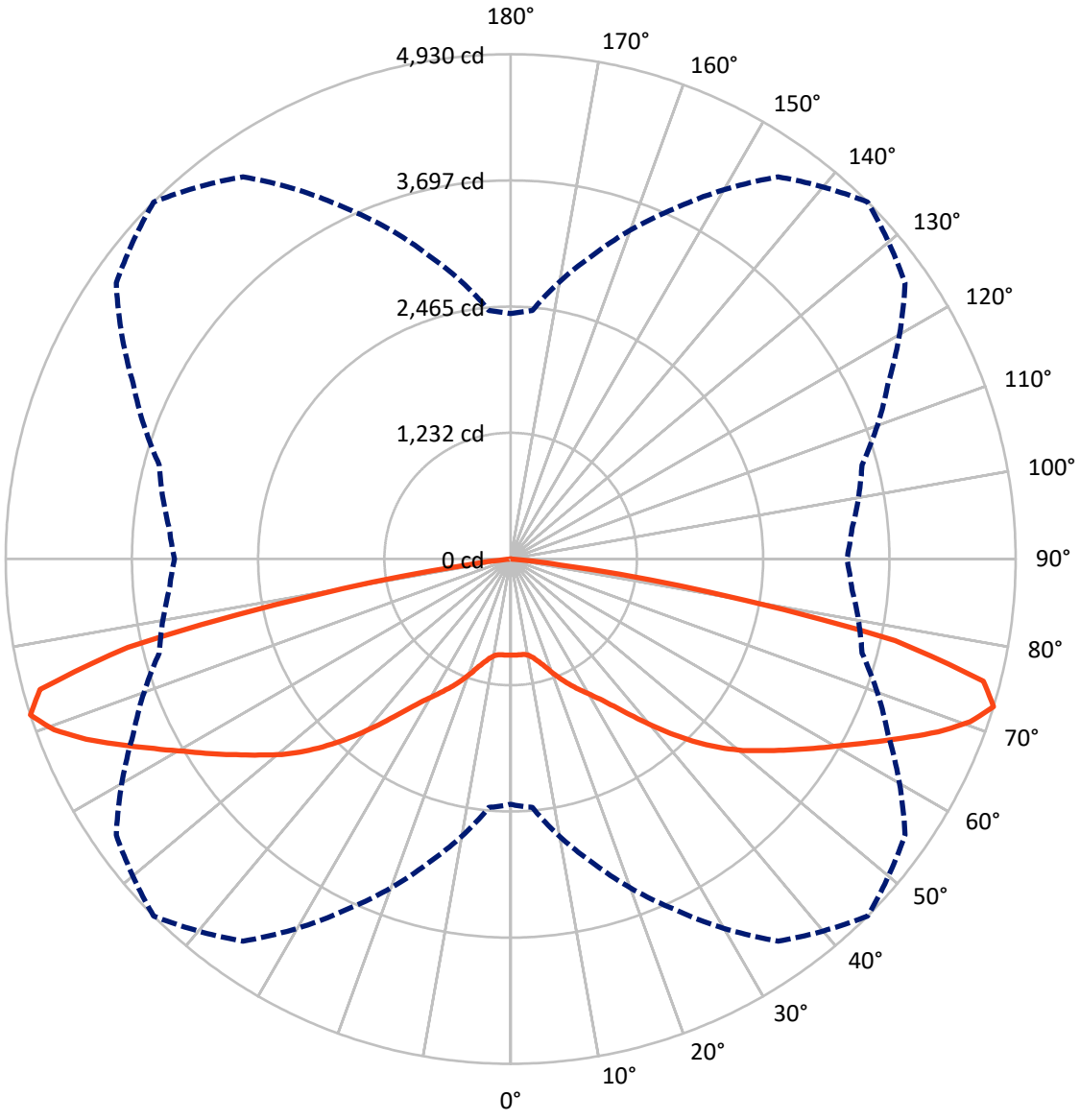
Luminous Intensity Polar Plot



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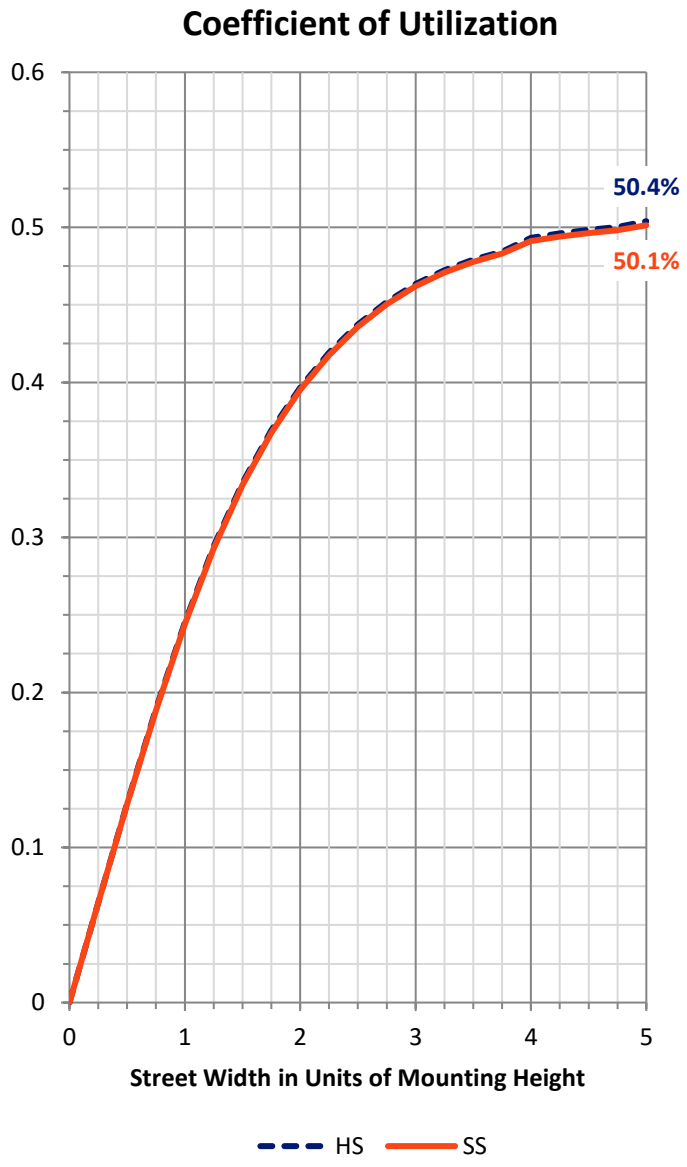
REPORT NUMBER: P868750
CATALOG NUMBER: EMM2-HTN-SA2C-740-U-T5W

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	7104.0	0.0	7104.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	7104.0	0.0	7104.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	14208.0	0.0	14208.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.9	0.6
10°-20°	300.0	2.1
20°-30°	619.0	4.4
30°-40°	1139.7	8.0
40°-50°	2003.8	14.1
50°-60°	2906.2	20.5
60°-70°	3788.6	26.7
70°-80°	3149.2	22.2
80°-90°	211.5	1.5
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°	14208.0	100.0
0°-180°	14208.0	100.0



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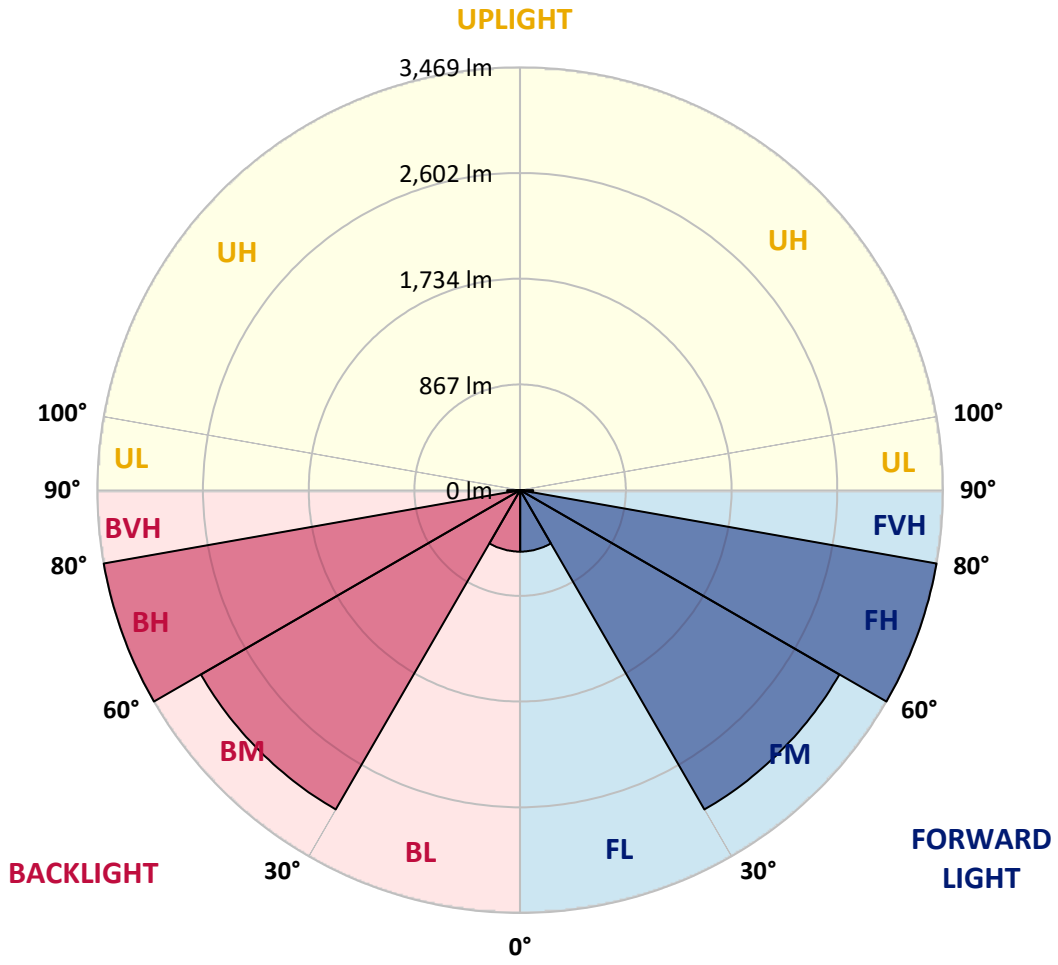
Scaled Data Report

REPORT NUMBER: P868750
CATALOG NUMBER: EMM2-HTN-SA2C-740-U-T5W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	504.5	3.6			
FM	(30°-60°)	3024.8	21.3			
FH	(60°-80°)	3468.9	24.4			G2/5000
FVH	(80°-90°)	105.7	0.7			G2/225
BL	(0°-30°)	504.5	3.6	B2/1000		
BM	(30°-60°)	3024.8	21.3	B3/5000		
BH	(60°-80°)	3468.9	24.4	B4/5000		G2/5000
BVH	(80°-90°)	105.7	0.7			G2/225
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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REPORT NUMBER: P868750
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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	938.0	938.0	938.0	938.0	938.0	938.0	938.0	938.0	938.0	938.0	938.0
2.5°	935.0	936.5	936.5	936.5	938.0	939.4	940.9	942.4	945.3	946.8	946.8
5°	939.4	938.0	936.5	939.4	939.4	939.4	940.9	942.4	942.4	942.4	943.9
7.5°	935.0	936.5	935.0	935.0	939.4	940.9	939.4	938.0	938.0	939.4	939.4
10°	951.2	949.8	948.3	948.3	952.7	954.2	952.7	951.2	951.2	954.2	954.2
12.5°	988.0	991.0	982.1	982.1	988.0	991.0	986.6	985.1	986.6	989.5	989.5
15°	1045.5	1044.0	1038.1	1032.2	1038.1	1042.5	1036.6	1033.7	1035.2	1042.5	1036.6
17.5°	1108.8	1110.3	1104.4	1098.5	1102.9	1108.8	1099.9	1092.6	1094.1	1097.0	1094.1
20°	1179.5	1178.0	1176.5	1176.5	1185.3	1192.7	1179.5	1161.8	1157.4	1154.4	1154.4
22.5°	1231.0	1235.4	1236.9	1250.1	1270.8	1278.1	1260.4	1236.9	1219.2	1210.4	1204.5
25°	1312.0	1307.6	1304.6	1319.3	1350.3	1363.5	1341.4	1309.0	1291.4	1289.9	1294.3
27.5°	1385.6	1385.6	1391.5	1406.2	1435.7	1448.9	1429.8	1397.4	1388.6	1388.6	1384.1
30°	1481.3	1476.9	1482.8	1507.8	1529.9	1538.7	1522.5	1500.5	1493.1	1493.1	1485.7
32.5°	1593.2	1594.7	1603.5	1619.7	1641.8	1643.3	1637.4	1627.1	1622.7	1618.3	1625.6
35°	1764.0	1764.0	1761.1	1772.9	1778.8	1781.7	1784.7	1780.2	1780.2	1780.2	1774.3
37.5°	1976.1	1964.3	1962.8	1952.5	1945.2	1952.5	1965.8	1980.5	1992.3	1984.9	1982.0
40°	2186.6	2180.7	2163.1	2146.9	2141.0	2143.9	2160.1	2191.1	2204.3	2204.3	2216.1
42.5°	2413.4	2401.6	2379.5	2360.4	2344.2	2348.6	2363.3	2401.6	2431.1	2444.3	2438.4
45°	2616.6	2606.3	2584.2	2566.5	2554.8	2553.3	2572.4	2597.5	2637.2	2649.0	2657.8
47.5°	2790.4	2783.0	2763.9	2746.2	2750.6	2752.1	2758.0	2780.1	2812.4	2828.6	2827.2
50°	2931.7	2925.8	2908.2	2915.5	2927.3	2939.1	2931.7	2946.4	2967.1	2974.4	2980.3
52.5°	3061.3	3052.5	3040.7	3053.9	3084.9	3108.4	3112.8	3102.5	3108.4	3112.8	3108.4
55°	3189.4	3179.1	3176.1	3199.7	3246.8	3291.0	3286.6	3257.1	3249.8	3240.9	3236.5
57.5°	3293.9	3286.6	3298.4	3338.1	3429.4	3488.3	3469.2	3401.4	3372.0	3351.4	3345.5
60°	3360.2	3358.7	3385.2	3478.0	3616.4	3698.9	3668.0	3551.6	3485.4	3466.2	3457.4
62.5°	3395.5	3397.0	3444.1	3609.1	3829.9	3941.8	3887.4	3709.2	3606.1	3587.0	3589.9
65°	3427.9	3423.5	3485.4	3719.5	4061.1	4212.8	4139.2	3899.1	3748.9	3710.7	3710.7
67.5°	3451.5	3455.9	3548.7	3829.9	4286.4	4502.9	4395.4	4100.9	3902.1	3844.7	3837.3
70°	3154.1	3196.8	3486.8	3903.6	4464.6	4759.1	4617.7	4224.6	3908.0	3744.5	3728.3
72.5°	2395.7	2435.5	3062.8	3772.5	4555.9	4929.9	4700.2	4067.0	3551.6	3344.0	3282.2
75°	1580.0	1608.0	2282.4	3295.4	4302.6	4767.9	4280.5	3503.0	2796.2	2526.8	2543.0
77.5°	703.8	793.7	1454.8	2571.0	3544.3	3837.3	3264.5	2389.8	1708.1	1446.0	1418.0
80°	294.5	322.5	549.2	1370.9	2054.1	1965.8	1390.0	801.0	509.5	396.1	382.8
82.5°	85.4	88.3	109.0	237.1	418.2	491.8	296.0	150.2	142.8	113.4	104.5
85°	5.9	5.9	8.8	14.7	20.6	33.9	38.3	44.2	50.1	42.7	42.7
87.5°	2.9	2.9	2.9	4.4	4.4	5.9	4.4	4.4	4.4	4.4	4.4
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: SP1-2407-157-5

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-740-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-740-U-5WQ-2

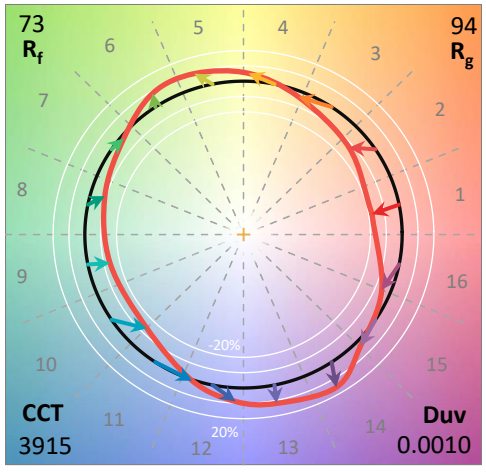
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-157-5
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	08/20/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-SA-40-740-U-5WQ-2**
Description:	Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K):	3915	CRI (Ra):	71.0		
CIE u':	0.2262	R1:	67.6	R9:	-38.4
CIE v':	0.5044	R2:	78.3	R10:	48.9
Duv:	0.0010	R3:	87.1	R11:	65.3
CIE x:	0.3850	R4:	69.7	R12:	40.4
CIE y:	0.3816	R5:	67.4	R13:	69.3
CIE z:	0.2334	R6:	69.3	R14:	92.6
Peak Wavelength (nm):	449	R7:	79.7	R15:	59.9
Dominant Wavelength (nm):	578	R8:	48.7		
Purity:	30.05482				
Rf:	73.2				
Rg:	93.9				



Test Conditions

Stabilization Time:	21M
Operation Time:	1H 21M
Sphere Temperature (°C):	24.2

REPORT NUMBER: SP1-2407-157-5

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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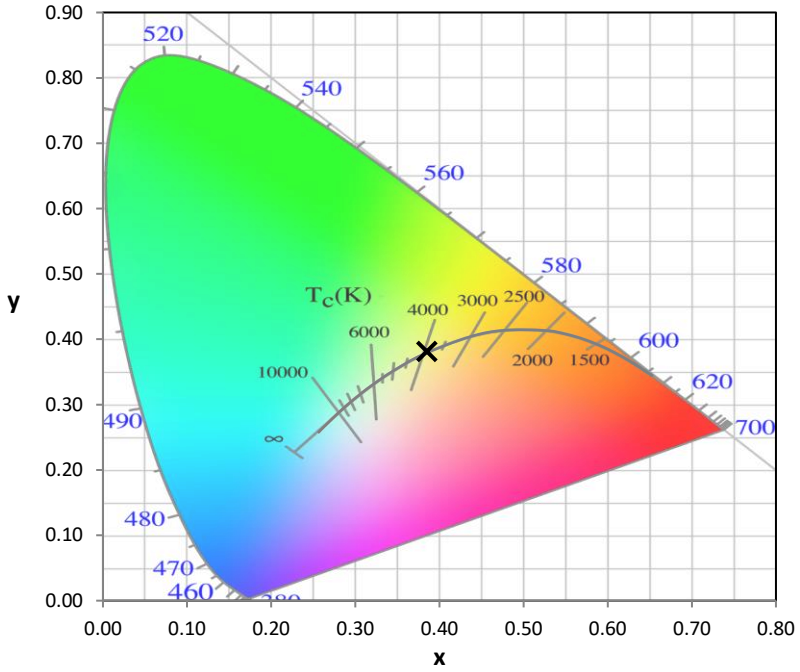
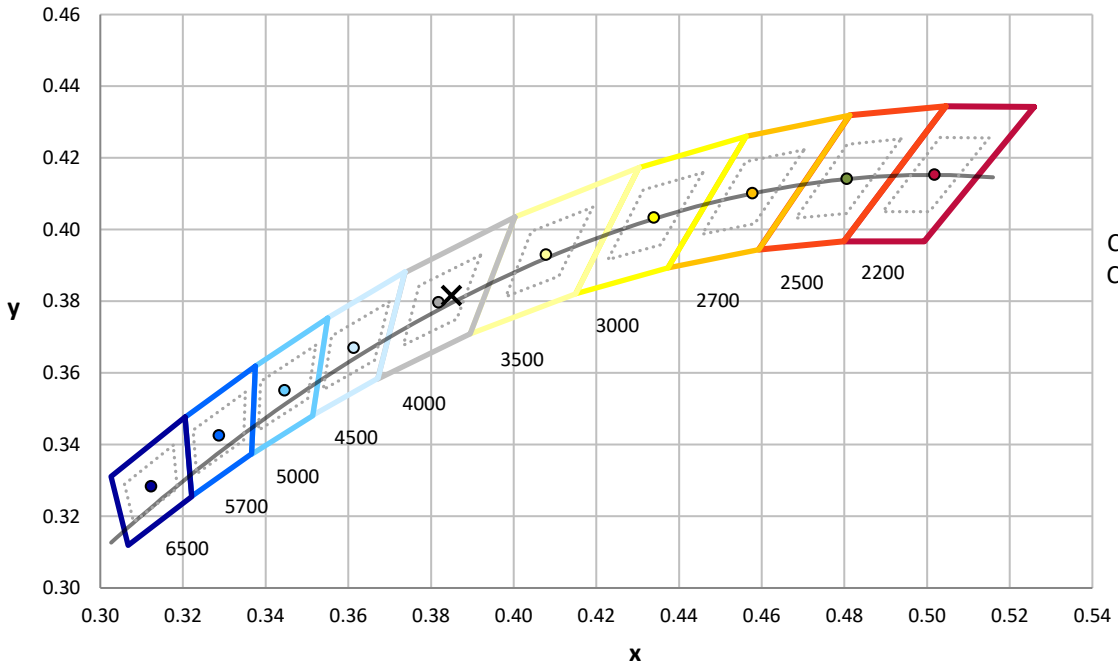
CIE 1931 Chromaticity Diagram



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



CCT = 3915K
CIE x = 0.3850
CIE y = 0.3816
Duv = 0.0010

Point lies inside the ANSI 4000K 4-step quadrangle

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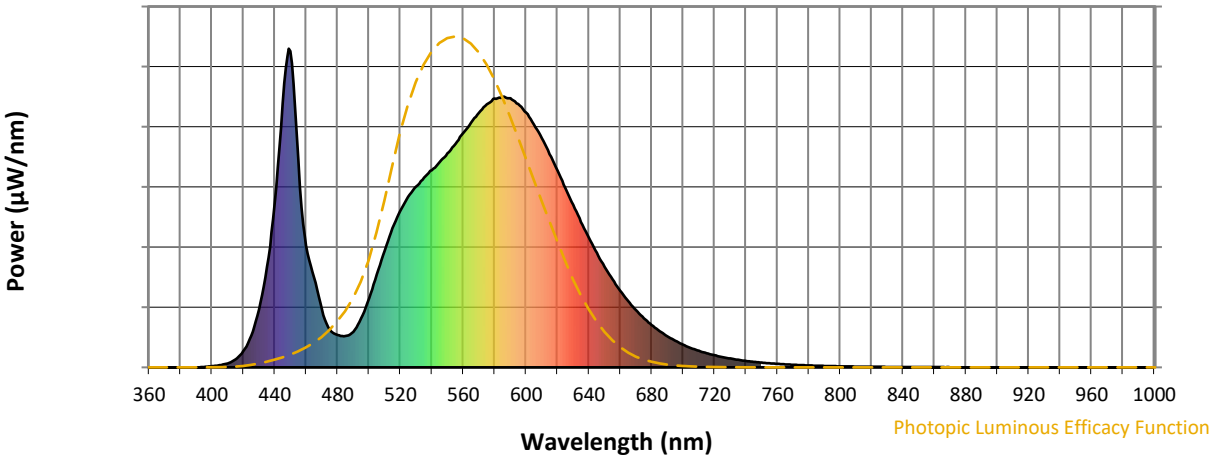
Photopic Flux vs. Wavelength

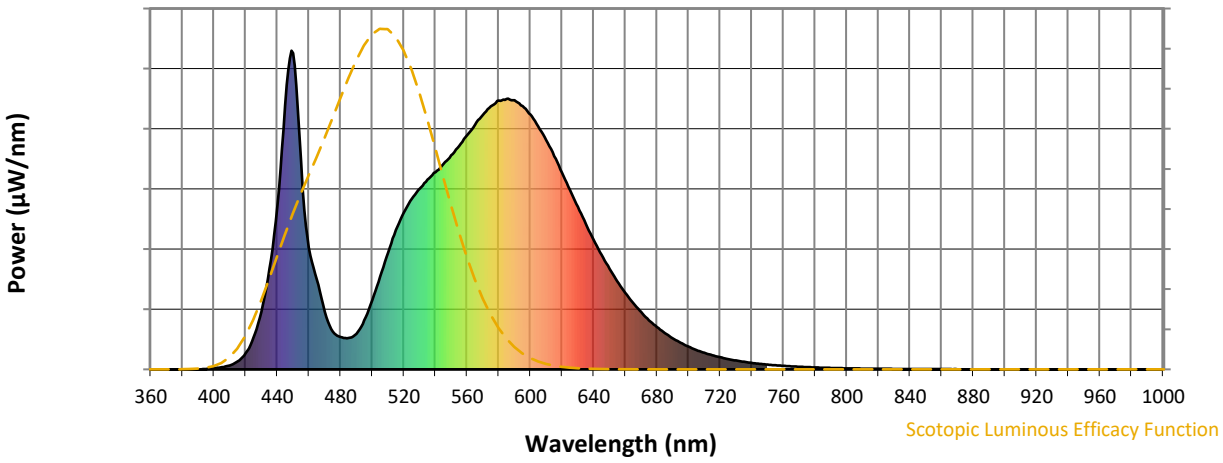


Photopic Lumens: NR

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	112	NR	620	618	NR	750	15	NR	880	0	NR
365	0	NR	495	153	NR	625	563	NR	755	13	NR	885	0	NR
370	0	NR	500	216	NR	630	510	NR	760	11	NR	890	0	NR
375	0	NR	505	291	NR	635	456	NR	765	9	NR	895	0	NR
380	0	NR	510	366	NR	640	407	NR	770	8	NR	900	0	NR
385	0	NR	515	436	NR	645	359	NR	775	7	NR	905	0	NR
390	0	NR	520	492	NR	650	316	NR	780	6	NR	910	0	NR
395	2	NR	525	536	NR	655	277	NR	785	5	NR	915	0	NR
400	4	NR	530	567	NR	660	240	NR	790	4	NR	920	0	NR
405	7	NR	535	596	NR	665	208	NR	795	4	NR	925	0	NR
410	12	NR	540	619	NR	670	179	NR	800	3	NR	930	0	NR
415	25	NR	545	644	NR	675	154	NR	805	3	NR	935	0	NR
420	51	NR	550	671	NR	680	133	NR	810	3	NR	940	0	NR
425	100	NR	555	701	NR	685	114	NR	815	2	NR	945	0	NR
430	180	NR	560	735	NR	690	98	NR	820	2	NR	950	0	NR
435	315	NR	565	768	NR	695	83	NR	825	2	NR	955	0	NR
440	514	NR	570	798	NR	700	71	NR	830	1	NR	960	0	NR
445	828	NR	575	825	NR	705	61	NR	835	1	NR	965	0	NR
450	992	NR	580	843	NR	710	52	NR	840	1	NR	970	0	NR
455	652	NR	585	848	NR	715	44	NR	845	1	NR	975	0	NR
460	382	NR	590	844	NR	720	38	NR	850	1	NR	980	0	NR
465	282	NR	595	826	NR	725	32	NR	855	1	NR	985	0	NR
470	180	NR	600	800	NR	730	28	NR	860	1	NR	990	0	NR
475	119	NR	605	762	NR	735	24	NR	865	1	NR	995	0	NR
480	101	NR	610	719	NR	740	20	NR	870	1	NR	1000	0	NR
485	98	NR	615	669	NR	745	17	NR	875	0	NR			

REPORT NUMBER: SP1-2407-157-5

Scotopic Flux vs. Wavelength

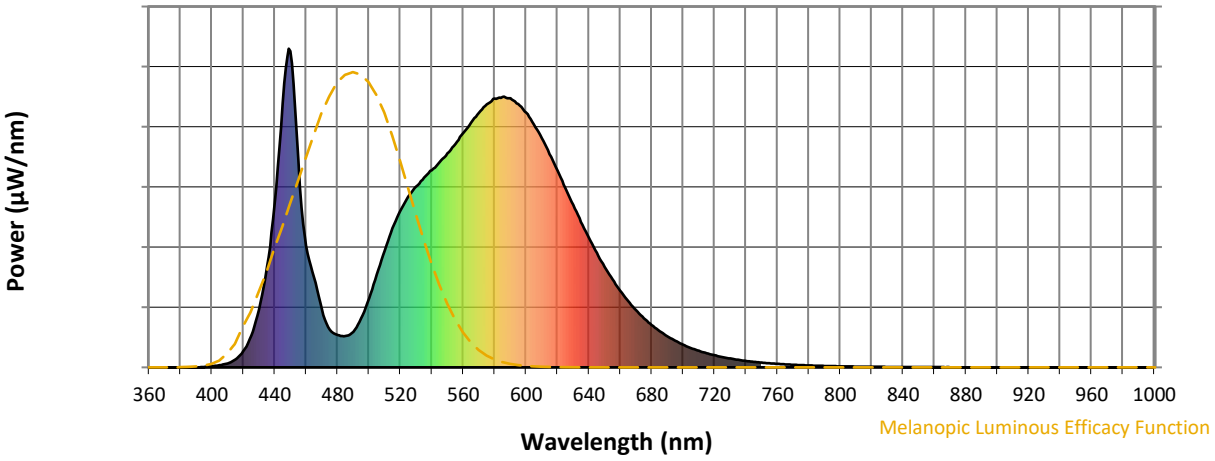


Scotopic Lumens: NR **S/P: 1.49**

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	112	NR	620	618	NR	750	15	NR	880	0	NR
365	0	NR	495	153	NR	625	563	NR	755	13	NR	885	0	NR
370	0	NR	500	216	NR	630	510	NR	760	11	NR	890	0	NR
375	0	NR	505	291	NR	635	456	NR	765	9	NR	895	0	NR
380	0	NR	510	366	NR	640	407	NR	770	8	NR	900	0	NR
385	0	NR	515	436	NR	645	359	NR	775	7	NR	905	0	NR
390	0	NR	520	492	NR	650	316	NR	780	6	NR	910	0	NR
395	2	NR	525	536	NR	655	277	NR	785	5	NR	915	0	NR
400	4	NR	530	567	NR	660	240	NR	790	4	NR	920	0	NR
405	7	NR	535	596	NR	665	208	NR	795	4	NR	925	0	NR
410	12	NR	540	619	NR	670	179	NR	800	3	NR	930	0	NR
415	25	NR	545	644	NR	675	154	NR	805	3	NR	935	0	NR
420	51	NR	550	671	NR	680	133	NR	810	3	NR	940	0	NR
425	100	NR	555	701	NR	685	114	NR	815	2	NR	945	0	NR
430	180	NR	560	735	NR	690	98	NR	820	2	NR	950	0	NR
435	315	NR	565	768	NR	695	83	NR	825	2	NR	955	0	NR
440	514	NR	570	798	NR	700	71	NR	830	1	NR	960	0	NR
445	828	NR	575	825	NR	705	61	NR	835	1	NR	965	0	NR
450	992	NR	580	843	NR	710	52	NR	840	1	NR	970	0	NR
455	652	NR	585	848	NR	715	44	NR	845	1	NR	975	0	NR
460	382	NR	590	844	NR	720	38	NR	850	1	NR	980	0	NR
465	282	NR	595	826	NR	725	32	NR	855	1	NR	985	0	NR
470	180	NR	600	800	NR	730	28	NR	860	1	NR	990	0	NR
475	119	NR	605	762	NR	735	24	NR	865	1	NR	995	0	NR
480	101	NR	610	719	NR	740	20	NR	870	1	NR	1000	0	NR
485	98	NR	615	669	NR	745	17	NR	875	0	NR			

REPORT NUMBER: SP1-2407-157-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.88**

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	112	NR	620	618	NR	750	15	NR	880	0	NR
365	0	NR	495	153	NR	625	563	NR	755	13	NR	885	0	NR
370	0	NR	500	216	NR	630	510	NR	760	11	NR	890	0	NR
375	0	NR	505	291	NR	635	456	NR	765	9	NR	895	0	NR
380	0	NR	510	366	NR	640	407	NR	770	8	NR	900	0	NR
385	0	NR	515	436	NR	645	359	NR	775	7	NR	905	0	NR
390	0	NR	520	492	NR	650	316	NR	780	6	NR	910	0	NR
395	2	NR	525	536	NR	655	277	NR	785	5	NR	915	0	NR
400	4	NR	530	567	NR	660	240	NR	790	4	NR	920	0	NR
405	7	NR	535	596	NR	665	208	NR	795	4	NR	925	0	NR
410	12	NR	540	619	NR	670	179	NR	800	3	NR	930	0	NR
415	25	NR	545	644	NR	675	154	NR	805	3	NR	935	0	NR
420	51	NR	550	671	NR	680	133	NR	810	3	NR	940	0	NR
425	100	NR	555	701	NR	685	114	NR	815	2	NR	945	0	NR
430	180	NR	560	735	NR	690	98	NR	820	2	NR	950	0	NR
435	315	NR	565	768	NR	695	83	NR	825	2	NR	955	0	NR
440	514	NR	570	798	NR	700	71	NR	830	1	NR	960	0	NR
445	828	NR	575	825	NR	705	61	NR	835	1	NR	965	0	NR
450	992	NR	580	843	NR	710	52	NR	840	1	NR	970	0	NR
455	652	NR	585	848	NR	715	44	NR	845	1	NR	975	0	NR
460	382	NR	590	844	NR	720	38	NR	850	1	NR	980	0	NR
465	282	NR	595	826	NR	725	32	NR	855	1	NR	985	0	NR
470	180	NR	600	800	NR	730	28	NR	860	1	NR	990	0	NR
475	119	NR	605	762	NR	735	24	NR	865	1	NR	995	0	NR
480	101	NR	610	719	NR	740	20	NR	870	1	NR	1000	0	NR
485	98	NR	615	669	NR	745	17	NR	875	0	NR			

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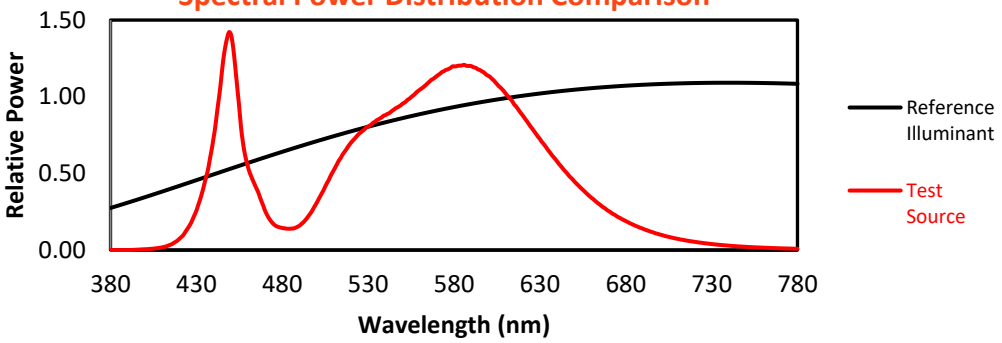
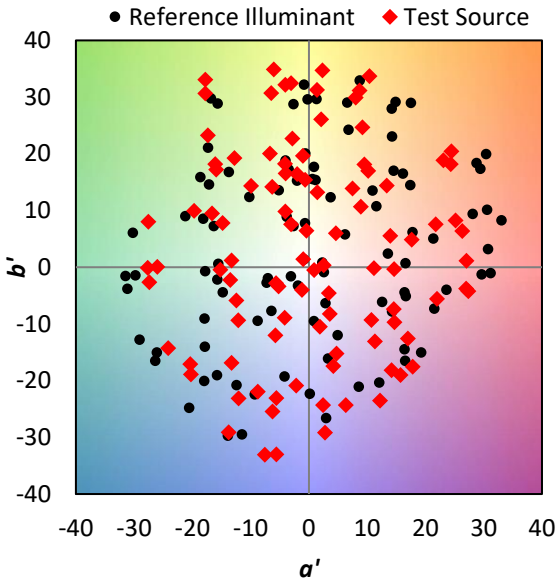
Summary

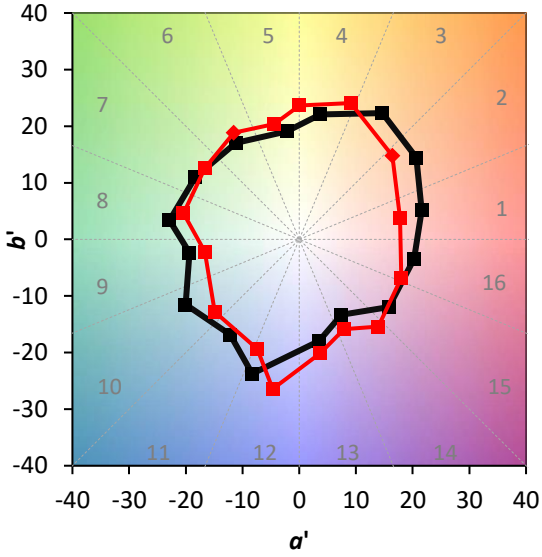
R_f = 73.2
R_g = 93.9
CIE R_a = 71.0
R_9 = -38.4

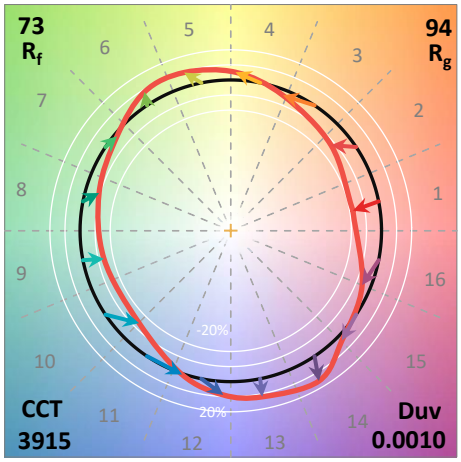
Spectral Power Distribution Comparison

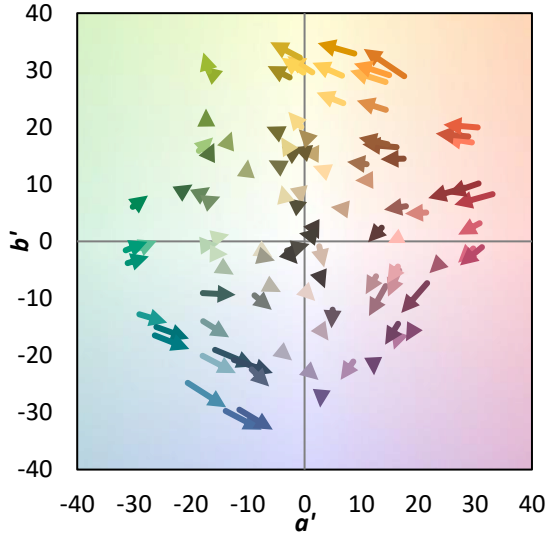


Color Vector Graphics









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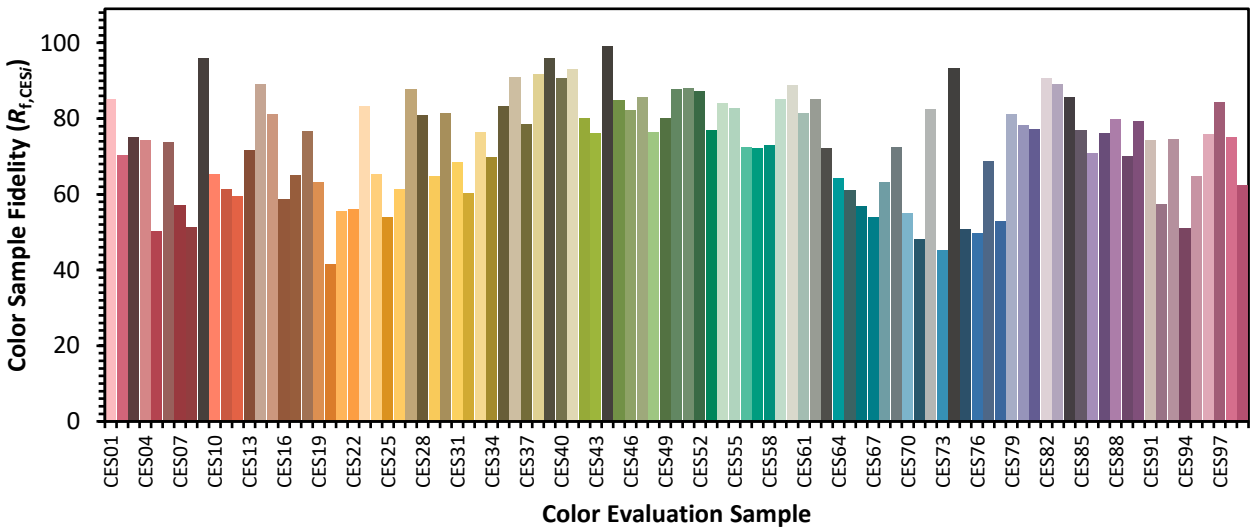
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 61	CES51 = 88	CES76 = 50
CES02 = 61	CES27 = 88	CES52 = 87	CES77 = 69
CES03 = 30	CES28 = 81	CES53 = 77	CES78 = 53
CES04 = 70	CES29 = 65	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 81	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 69	CES56 = 73	CES81 = 77
CES07 = 40	CES32 = 60	CES57 = 72	CES82 = 91
CES08 = 39	CES33 = 76	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 70	CES59 = 85	CES84 = 86
CES10 = 74	CES35 = 83	CES60 = 89	CES85 = 77
CES11 = 57	CES36 = 91	CES61 = 81	CES86 = 71
CES12 = 63	CES37 = 79	CES62 = 85	CES87 = 76
CES13 = 42	CES38 = 92	CES63 = 72	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 64	CES89 = 70
CES15 = 71	CES40 = 91	CES65 = 61	CES90 = 79
CES16 = 46	CES41 = 93	CES66 = 57	CES91 = 74
CES17 = 49	CES42 = 80	CES67 = 54	CES92 = 57
CES18 = 56	CES43 = 76	CES68 = 63	CES93 = 74
CES19 = 72	CES44 = 99	CES69 = 73	CES94 = 51
CES20 = 65	CES45 = 85	CES70 = 55	CES95 = 65
CES21 = 86	CES46 = 82	CES71 = 48	CES96 = 76
CES22 = 78	CES47 = 86	CES72 = 83	CES97 = 84
CES23 = 92	CES48 = 77	CES73 = 45	CES98 = 75
CES24 = 91	CES49 = 80	CES74 = 93	CES99 = 62
CES25 = 72	CES50 = 88	CES75 = 51	



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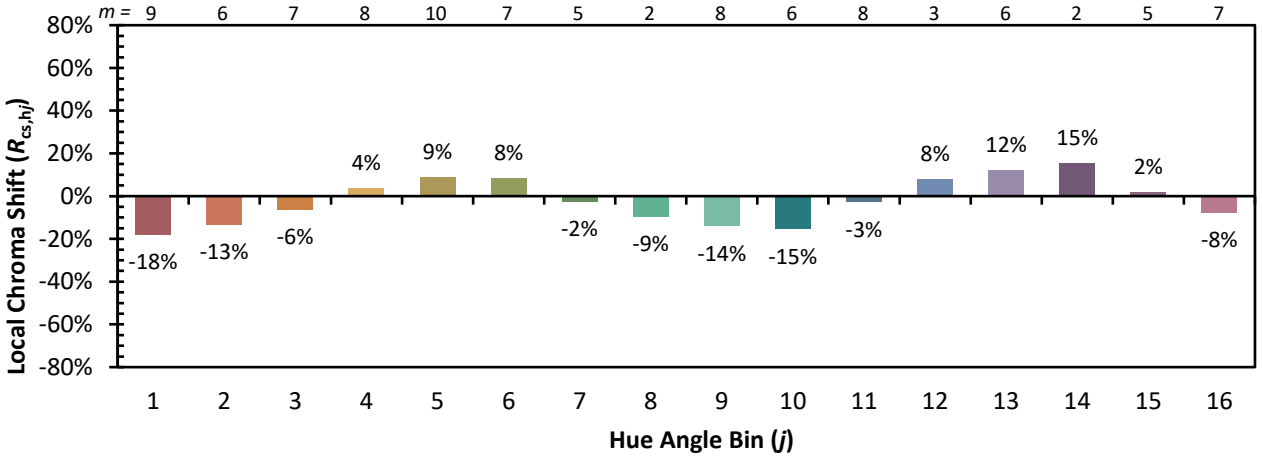
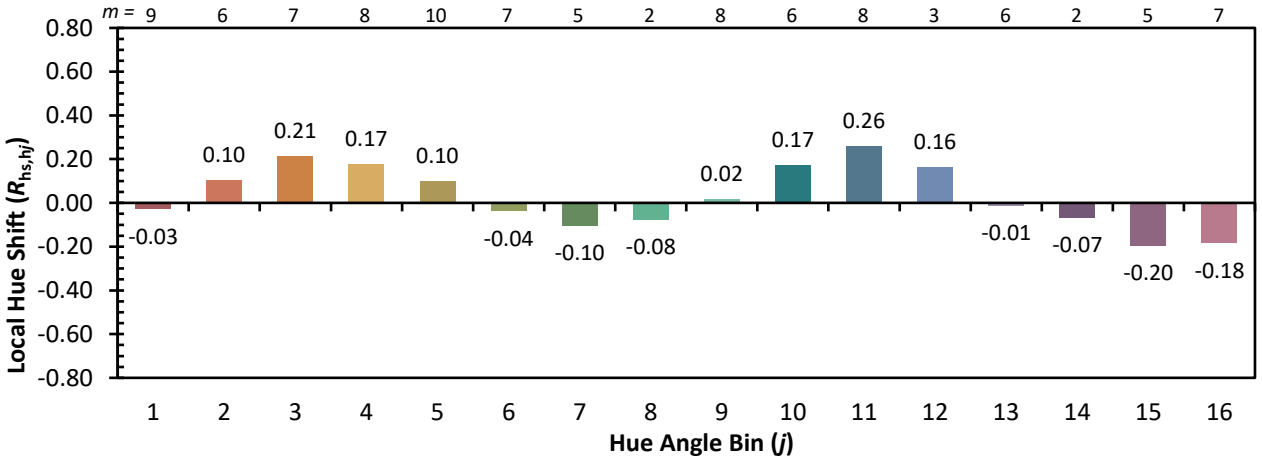
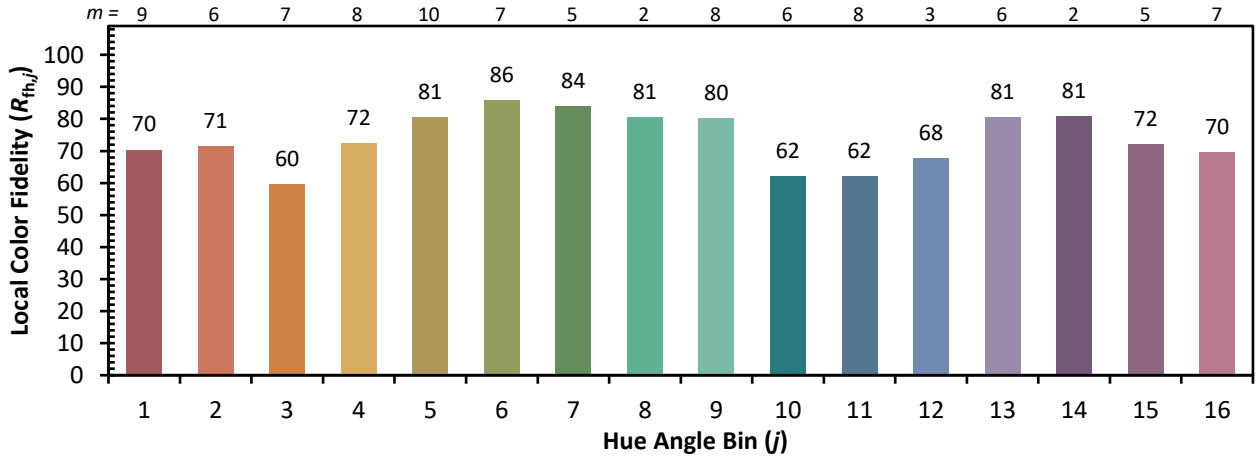
Color Rendition by Hue-Angle Bin







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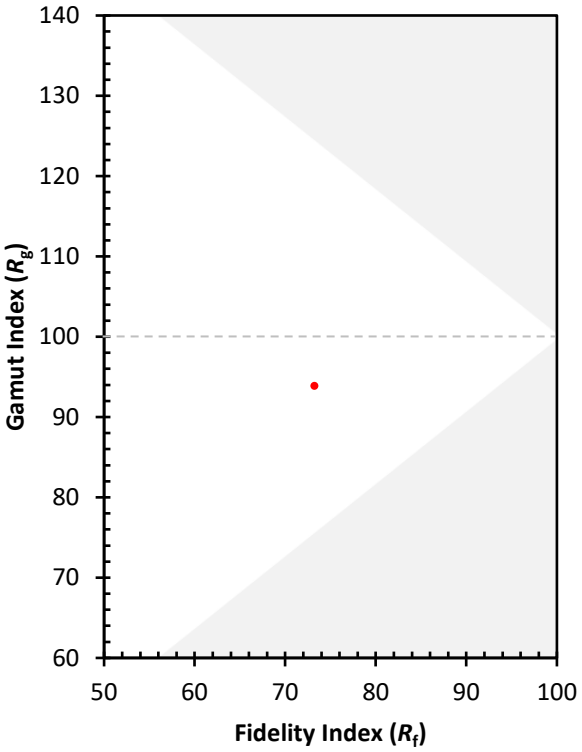
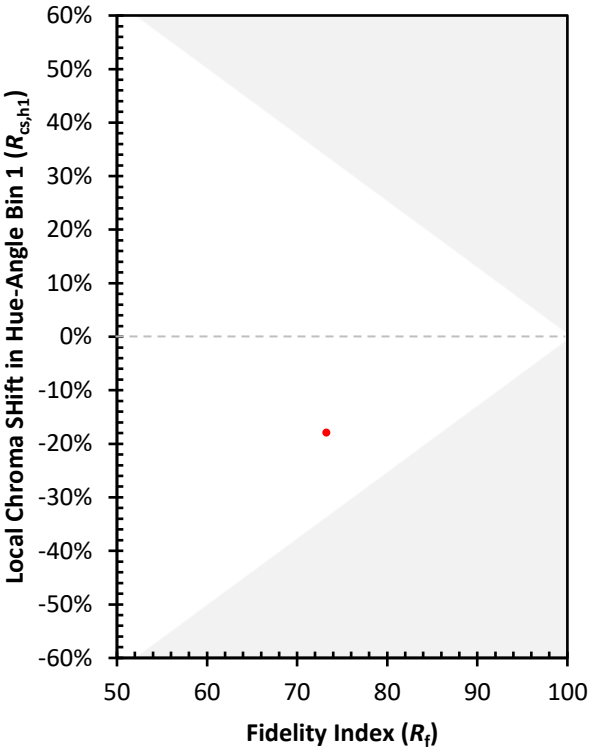
Measure Comparisons





(END OF REPORT)