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: P879664

Luminaire Tested: **EMM2-HTN-VA9-750-U-WQ**

Issue Date: 10/01/2024

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:	P879664
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HTN-VA9-750-U-WQ
Description:	EPIC MODERN TALL HOUSING 9W 70CRI 5000K WAVESTREAM FIXTURE w/ TYPE V WIDE DISTRIBUTION OPTIC
Light Source:	(1) 5000K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	20867.3 lumens
Efficiency:	N/A
Efficacy:	122.7 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G4

Input Watts (W):	170
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.995
Total Harmonic Distortion (THDi):	5.9%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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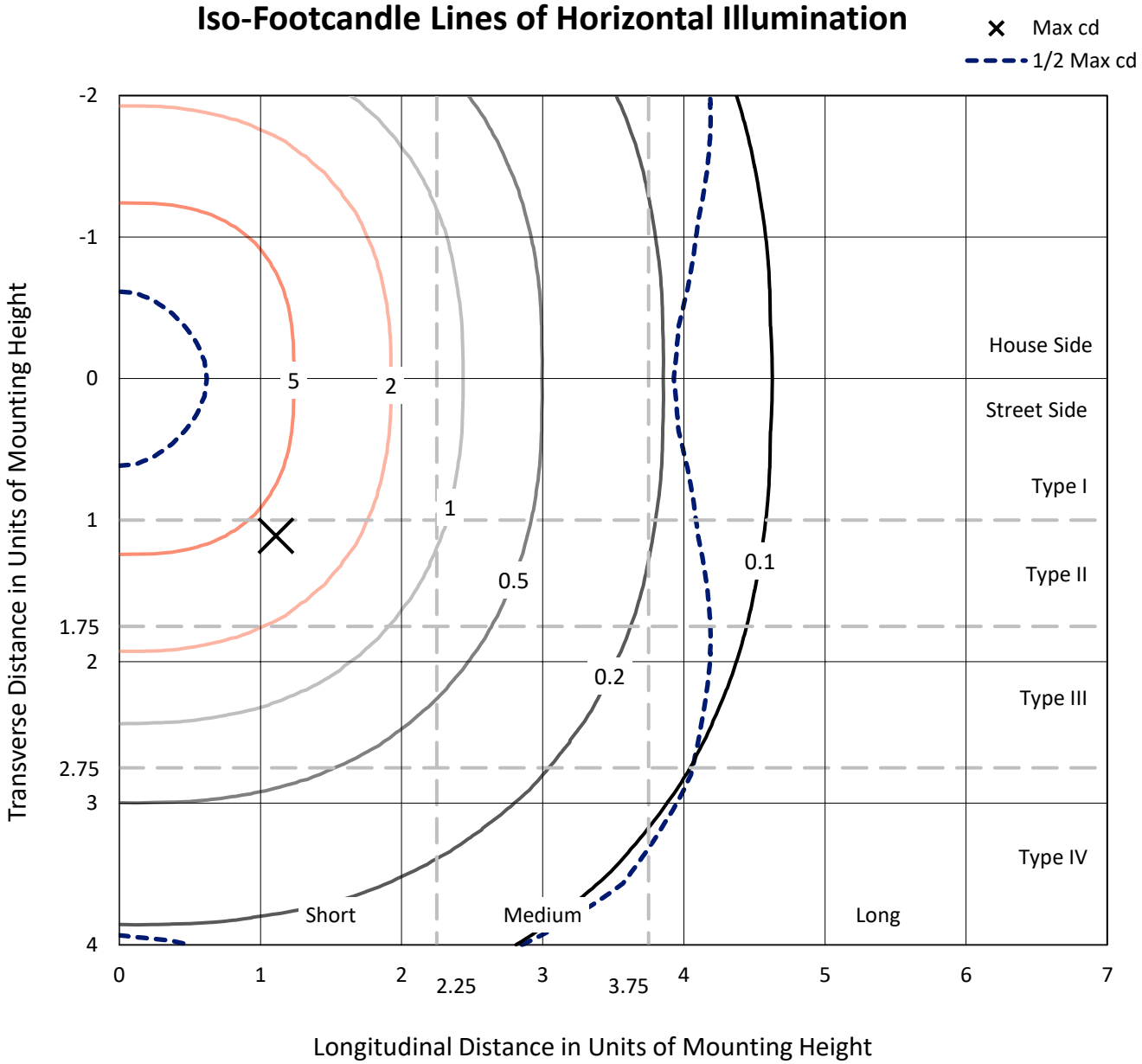
Scaled Data Report

REPORT NUMBER: P879664
CATALOG NUMBER: EMM2-HTN-VA9-750-U-WQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 7.9 fc
Type V - Short - N/A

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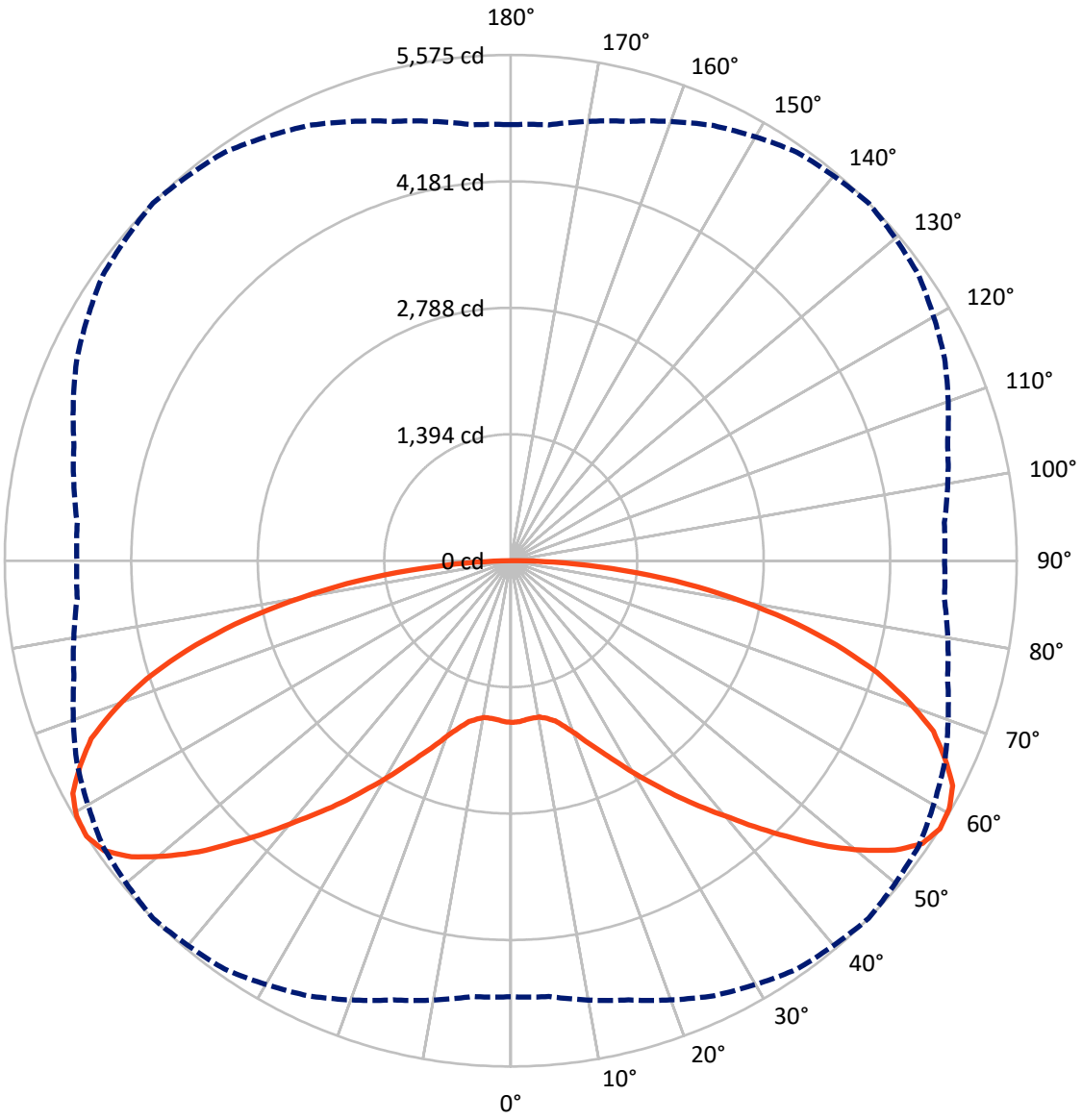
Scaled Data Report

REPORT NUMBER: P879664
CATALOG NUMBER: EMM2-HTN-VA9-750-U-WQ

Luminous Intensity Polar Plot



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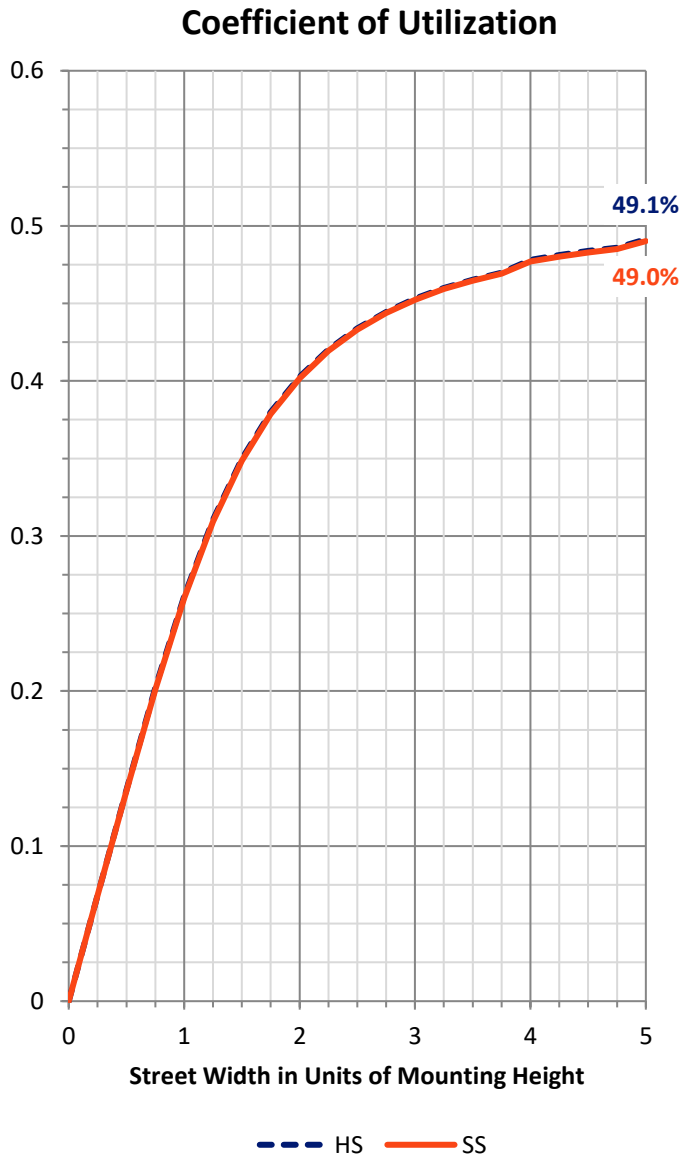
REPORT NUMBER: P879664
CATALOG NUMBER: EMM2-HTN-VA9-750-U-WQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	10433.7	0.0	10433.7
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	10433.7	0.0	10433.7
	% Fixture	50.0	0.0	50.0
Total	Lumens	20867.3	0.0	20867.3
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.8	0.8
10°-20°	527.5	2.5
20°-30°	1084.3	5.2
30°-40°	1978.4	9.5
40°-50°	3244.5	15.5
50°-60°	4546.3	21.8
60°-70°	4756.0	22.8
70°-80°	3474.8	16.7
80°-90°	1087.7	5.2
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°	20867.3	100.0
0°-180°	20867.3	100.0



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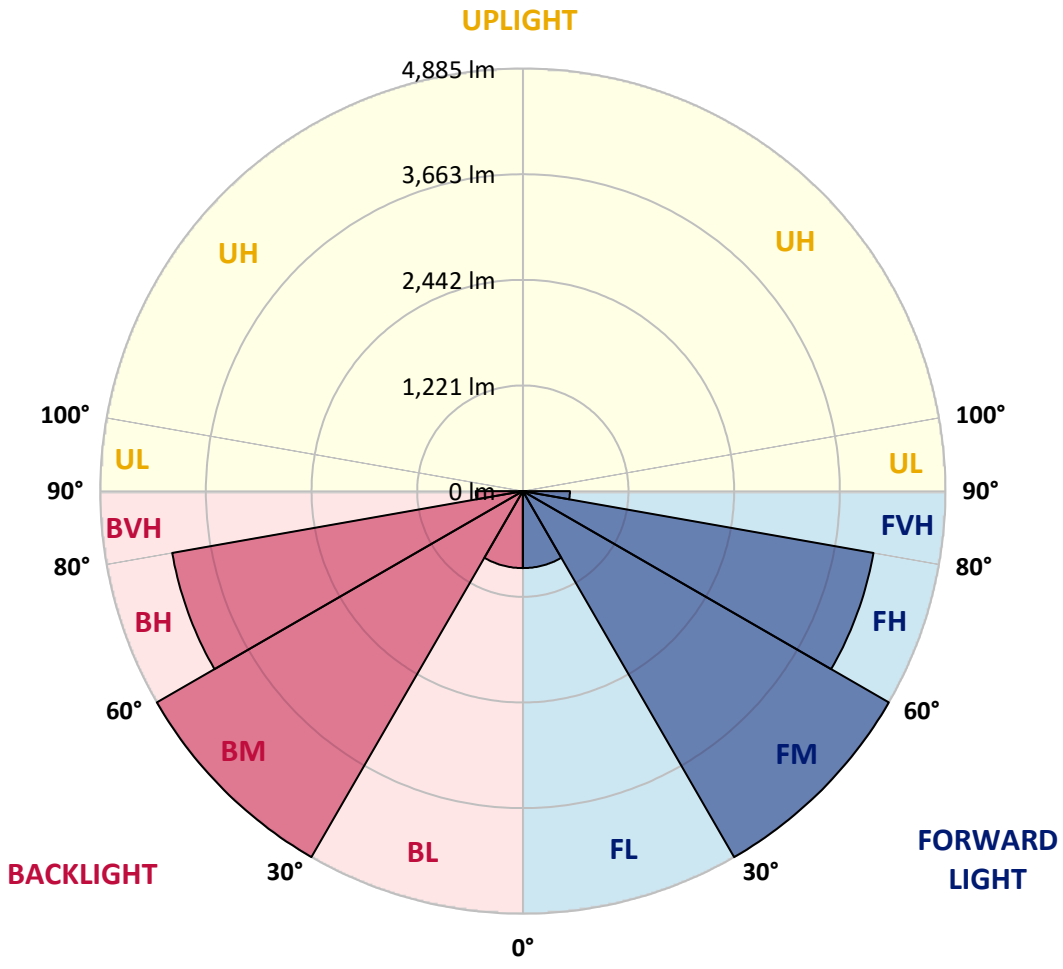
Scaled Data Report

REPORT NUMBER: P879664
CATALOG NUMBER: EMM2-HTN-VA9-750-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	889.8	4.3			
FM	(30°-60°)	4884.6	23.4			
FH	(60°-80°)	4115.4	19.7			G2/5000
FVH	(80°-90°)	543.8	2.6			G4/750
BL	(0°-30°)	889.8	4.3	B2/1000		
BM	(30°-60°)	4884.6	23.4	B3/5000		
BH	(60°-80°)	4115.4	19.7	B4/5000		G2/5000
BVH	(80°-90°)	543.8	2.6			G4/750
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G4
Type V Short



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REPORT NUMBER: P879664
CATALOG NUMBER: EMM2-HTN-VA9-750-U-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1781.7	1781.7	1781.7	1781.7	1781.7	*1781.7*	1781.7	1781.7	1781.7	1781.7	1781.7
2.5°	1775.1	1777.7	1776.4	1776.4	1775.1	*1776.4*	1779.0	1780.3	1779.0	1780.3	1779.0
5°	1763.4	1763.4	1762.0	1760.7	1760.7	*1760.7*	1760.7	1760.7	1762.0	1762.0	1763.4
7.5°	1749.0	1749.0	1749.0	1751.6	1750.3	*1751.6*	1751.6	1750.3	1749.0	1749.0	1750.3
10°	1751.6	1750.3	1749.0	1751.6	1750.3	*1751.6*	1751.6	1749.0	1750.3	1751.6	1752.9
12.5°	1773.8	1771.2	1775.1	1779.0	1781.7	*1784.3*	1783.0	1781.7	1777.7	1773.8	1773.8
15°	1822.2	1819.6	1823.5	1828.7	1830.0	*1831.3*	1835.2	1830.0	1828.7	1822.2	1820.9
17.5°	1891.5	1890.1	1898.0	1908.4	1913.7	*1920.2*	1913.7	1908.4	1894.1	1891.5	1895.4
20°	1990.8	1986.9	2002.6	2019.6	2024.8	*2032.6*	2027.4	2016.9	2002.6	1986.9	1986.9
22.5°	2117.6	2126.7	2134.6	2147.7	2168.6	*2181.6*	2164.7	2146.4	2125.4	2116.3	2109.7
25°	2282.3	2281.0	2288.8	2315.0	2328.0	*2337.2*	2334.6	2309.7	2291.4	2278.4	2277.1
27.5°	2440.5	2456.1	2471.8	2488.8	2521.5	*2525.4*	2521.5	2491.4	2462.7	2452.2	2448.3
30°	2650.9	2648.3	2662.7	2703.2	2735.9	*2738.5*	2728.0	2691.4	2658.8	2639.1	2641.8
32.5°	2856.1	2835.2	2873.1	2900.6	2928.0	*2956.8*	2929.3	2900.6	2873.1	2831.3	2844.4
35°	3043.1	3060.1	3081.0	3137.2	3193.4	*3205.1*	3186.8	3128.0	3074.4	3054.8	3032.6
37.5°	3271.8	3271.8	3307.1	3389.5	3440.4	*3458.7*	3432.6	3373.8	3299.3	3270.5	3260.0
40°	3501.9	3501.9	3555.5	3624.7	3700.6	*3726.7*	3697.9	3620.8	3559.4	3484.9	3496.6
42.5°	3725.4	3743.7	3814.3	3899.2	4005.1	*4040.4*	3999.9	3896.6	3807.7	3737.2	3726.7
45°	3972.4	4001.2	4078.3	4218.2	4308.4	*4359.4*	4303.2	4214.3	4057.4	3989.4	3952.8
47.5°	4241.7	4261.3	4372.4	4505.8	4652.2	*4705.8*	4639.1	4494.0	4360.7	4240.4	4235.2
50°	4475.7	4471.8	4614.3	4798.6	4964.6	*5015.6*	4962.0	4805.1	4588.1	4454.8	4467.9
52.5°	4650.9	4673.1	4823.4	5050.9	5227.3	*5301.8*	5214.2	5026.0	4799.9	4661.3	4619.5
55°	4764.6	4801.2	4976.3	5222.1	5423.4	*5503.1*	5416.9	5199.9	4952.8	4773.7	4748.9
57.5°	*4806.4*	*4822.1*	*5012.9*	*5291.4*	*5496.6*	*5575.0*	*5486.1*	*5274.4*	*4982.9*	*4796.0*	*4780.3*
60°	4742.4	4758.0	4964.6	5249.5	5484.8	*5551.5*	5480.9	5232.5	4935.8	4745.0	4718.8
62.5°	4585.5	4628.6	4857.4	5139.7	5409.0	*5465.2*	5392.0	5120.1	4845.6	4615.6	4577.7
65°	4397.3	4443.0	4637.8	4952.8	5197.3	*5257.4*	5199.9	4938.4	4639.1	4418.2	4381.6
67.5°	4134.5	4142.4	4371.1	4690.1	4948.9	*5022.1*	4922.7	4684.8	4359.4	4150.2	4121.5
70°	3806.4	3811.7	4054.8	4350.2	4588.1	*4648.2*	4582.9	4329.3	4037.8	3810.4	3790.8
72.5°	3385.5	3433.9	3635.2	3928.0	4150.2	*4220.8*	4135.8	3920.2	3650.9	3426.1	3381.6
75°	2938.5	2968.6	3143.7	3427.4	3618.2	*3705.8*	3636.5	3427.4	3143.7	2958.1	2918.9
77.5°	2415.6	2456.1	2627.4	2866.6	3024.8	*3118.9*	3043.1	2857.4	2627.4	2457.5	2456.1
80°	1908.4	1898.0	2053.5	2260.1	2416.9	*2471.8*	2424.8	2244.4	2037.9	1905.8	1887.5
82.5°	1324.1	1321.5	1490.2	1628.7	1760.7	*1823.5*	1751.6	1635.3	1475.8	1358.1	1320.2
85°	752.9	769.9	881.0	967.3	1079.7	*1117.6*	1092.8	983.0	840.5	737.2	730.7
87.5°	261.4	285.0	305.9	368.6	441.8	*474.5*	439.2	422.2	375.2	325.5	328.1
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: SP1-2407-176-10

Test Date: 09/25/2024

Luminaire Tested: MEM2-HTN-VA-130-750-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-750-U-RW

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

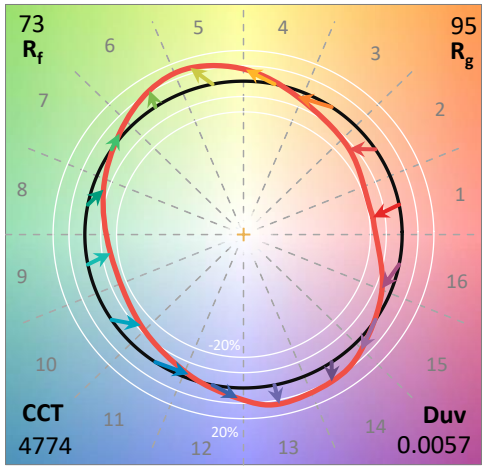
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-10
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/27/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-VA-130-750-U-RW**
Description:	EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K):	4774
CIE u':	0.2100
CIE v':	0.4945
Duv:	0.0057
CIE x:	0.3535
CIE y:	0.3699
CIE z:	0.2766
Peak Wavelength (nm):	444
Dominant Wavelength (nm):	571
Purity:	17.0787
Rf:	73.1
Rg:	94.9

CRI (Ra):	70.8		
R1:	67.0	R9:	-40.0
R2:	75.4	R10:	43.4
R3:	83.5	R11:	69.3
R4:	71.8	R12:	45.5
R5:	68.4	R13:	67.9
R6:	67.5	R14:	90.8
R7:	80.0	R15:	58.2
R8:	53.1		



Test Conditions

Stabilization Time:	37M
Operation Time:	1H 37M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-10

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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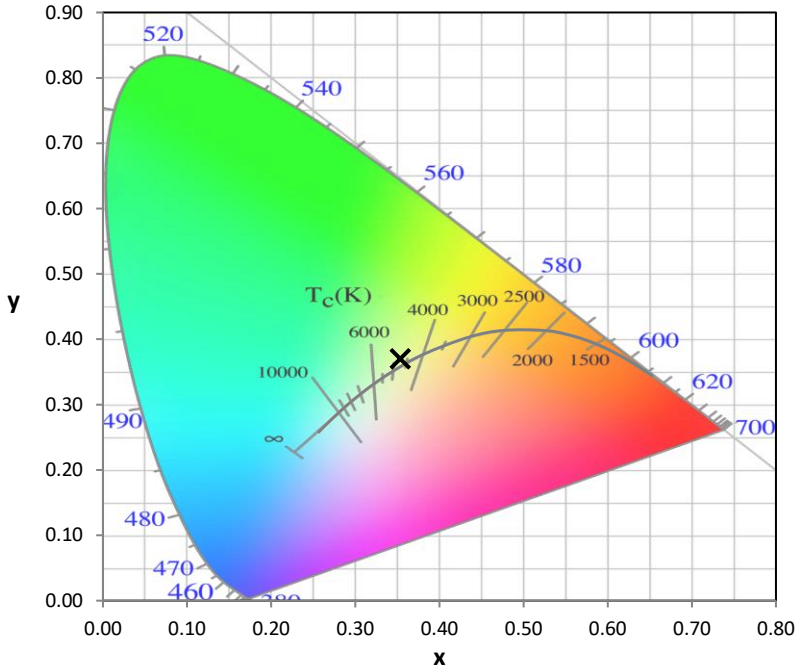
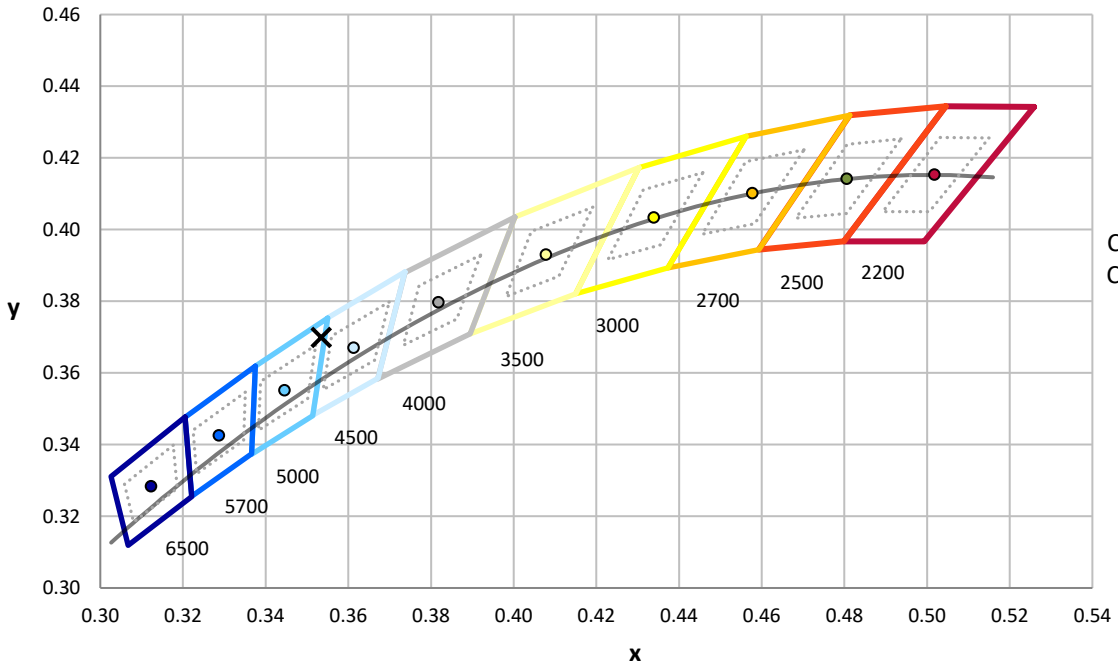
CIE 1931 Chromaticity Diagram



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

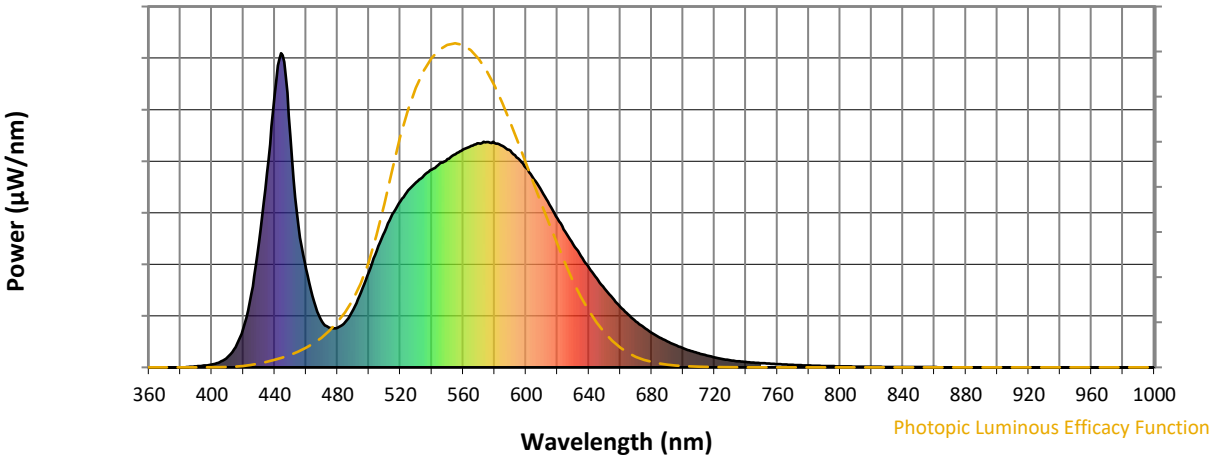


CCT = 4774K
CIE x = 0.3535
CIE y = 0.3699
Duv = 0.0057

Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-10

Photopic Flux vs. Wavelength

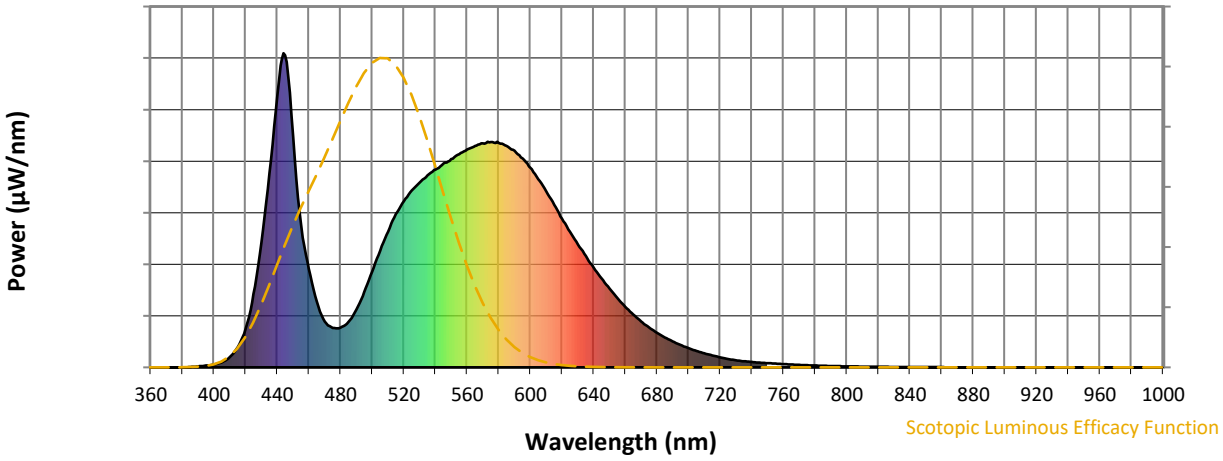


Photopic Lumens: NR

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	184	NR	620	474	NR	750	13	NR	880	0	NR
365	0	NR	495	239	NR	625	432	NR	755	12	NR	885	0	NR
370	0	NR	500	305	NR	630	392	NR	760	10	NR	890	0	NR
375	0	NR	505	371	NR	635	354	NR	765	9	NR	895	0	NR
380	0	NR	510	432	NR	640	318	NR	770	8	NR	900	0	NR
385	1	NR	515	488	NR	645	283	NR	775	7	NR	905	0	NR
390	3	NR	520	529	NR	650	251	NR	780	6	NR	910	0	NR
395	6	NR	525	563	NR	655	221	NR	785	5	NR	915	0	NR
400	9	NR	530	589	NR	660	193	NR	790	4	NR	920	0	NR
405	16	NR	535	611	NR	665	169	NR	795	4	NR	925	0	NR
410	33	NR	540	629	NR	670	146	NR	800	3	NR	930	0	NR
415	64	NR	545	649	NR	675	127	NR	805	3	NR	935	0	NR
420	124	NR	550	663	NR	680	110	NR	810	2	NR	940	0	NR
425	233	NR	555	678	NR	685	95	NR	815	2	NR	945	0	NR
430	397	NR	560	693	NR	690	83	NR	820	2	NR	950	0	NR
435	617	NR	565	705	NR	695	71	NR	825	2	NR	955	0	NR
440	868	NR	570	713	NR	700	61	NR	830	1	NR	960	0	NR
445	994	NR	575	717	NR	705	52	NR	835	1	NR	965	0	NR
450	736	NR	580	715	NR	710	45	NR	840	1	NR	970	0	NR
455	454	NR	585	705	NR	715	38	NR	845	1	NR	975	0	NR
460	314	NR	590	689	NR	720	32	NR	850	1	NR	980	0	NR
465	210	NR	595	665	NR	725	27	NR	855	1	NR	985	0	NR
470	146	NR	600	635	NR	730	23	NR	860	1	NR	990	0	NR
475	126	NR	605	599	NR	735	19	NR	865	0	NR	995	0	NR
480	126	NR	610	561	NR	740	17	NR	870	0	NR	1000	0	NR
485	144	NR	615	517	NR	745	15	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-10

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.71**

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	184	NR	620	474	NR	750	13	NR	880	0	NR
365	0	NR	495	239	NR	625	432	NR	755	12	NR	885	0	NR
370	0	NR	500	305	NR	630	392	NR	760	10	NR	890	0	NR
375	0	NR	505	371	NR	635	354	NR	765	9	NR	895	0	NR
380	0	NR	510	432	NR	640	318	NR	770	8	NR	900	0	NR
385	1	NR	515	488	NR	645	283	NR	775	7	NR	905	0	NR
390	3	NR	520	529	NR	650	251	NR	780	6	NR	910	0	NR
395	6	NR	525	563	NR	655	221	NR	785	5	NR	915	0	NR
400	9	NR	530	589	NR	660	193	NR	790	4	NR	920	0	NR
405	16	NR	535	611	NR	665	169	NR	795	4	NR	925	0	NR
410	33	NR	540	629	NR	670	146	NR	800	3	NR	930	0	NR
415	64	NR	545	649	NR	675	127	NR	805	3	NR	935	0	NR
420	124	NR	550	663	NR	680	110	NR	810	2	NR	940	0	NR
425	233	NR	555	678	NR	685	95	NR	815	2	NR	945	0	NR
430	397	NR	560	693	NR	690	83	NR	820	2	NR	950	0	NR
435	617	NR	565	705	NR	695	71	NR	825	2	NR	955	0	NR
440	868	NR	570	713	NR	700	61	NR	830	1	NR	960	0	NR
445	994	NR	575	717	NR	705	52	NR	835	1	NR	965	0	NR
450	736	NR	580	715	NR	710	45	NR	840	1	NR	970	0	NR
455	454	NR	585	705	NR	715	38	NR	845	1	NR	975	0	NR
460	314	NR	590	689	NR	720	32	NR	850	1	NR	980	0	NR
465	210	NR	595	665	NR	725	27	NR	855	1	NR	985	0	NR
470	146	NR	600	635	NR	730	23	NR	860	1	NR	990	0	NR
475	126	NR	605	599	NR	735	19	NR	865	0	NR	995	0	NR
480	126	NR	610	561	NR	740	17	NR	870	0	NR	1000	0	NR
485	144	NR	615	517	NR	745	15	NR	875	0	NR			

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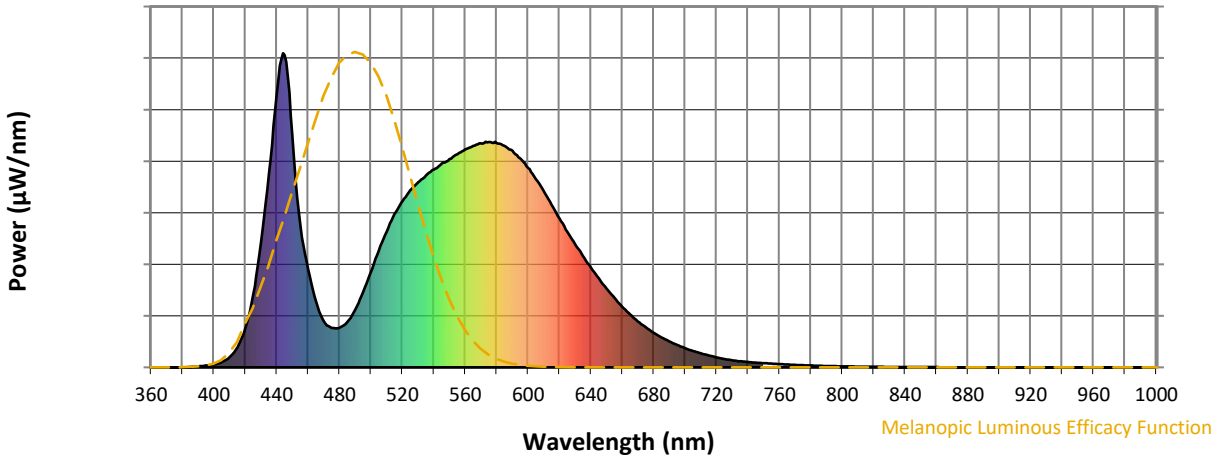
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 3.39**

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	184	NR	620	474	NR	750	13	NR	880	0	NR
365	0	NR	495	239	NR	625	432	NR	755	12	NR	885	0	NR
370	0	NR	500	305	NR	630	392	NR	760	10	NR	890	0	NR
375	0	NR	505	371	NR	635	354	NR	765	9	NR	895	0	NR
380	0	NR	510	432	NR	640	318	NR	770	8	NR	900	0	NR
385	1	NR	515	488	NR	645	283	NR	775	7	NR	905	0	NR
390	3	NR	520	529	NR	650	251	NR	780	6	NR	910	0	NR
395	6	NR	525	563	NR	655	221	NR	785	5	NR	915	0	NR
400	9	NR	530	589	NR	660	193	NR	790	4	NR	920	0	NR
405	16	NR	535	611	NR	665	169	NR	795	4	NR	925	0	NR
410	33	NR	540	629	NR	670	146	NR	800	3	NR	930	0	NR
415	64	NR	545	649	NR	675	127	NR	805	3	NR	935	0	NR
420	124	NR	550	663	NR	680	110	NR	810	2	NR	940	0	NR
425	233	NR	555	678	NR	685	95	NR	815	2	NR	945	0	NR
430	397	NR	560	693	NR	690	83	NR	820	2	NR	950	0	NR
435	617	NR	565	705	NR	695	71	NR	825	2	NR	955	0	NR
440	868	NR	570	713	NR	700	61	NR	830	1	NR	960	0	NR
445	994	NR	575	717	NR	705	52	NR	835	1	NR	965	0	NR
450	736	NR	580	715	NR	710	45	NR	840	1	NR	970	0	NR
455	454	NR	585	705	NR	715	38	NR	845	1	NR	975	0	NR
460	314	NR	590	689	NR	720	32	NR	850	1	NR	980	0	NR
465	210	NR	595	665	NR	725	27	NR	855	1	NR	985	0	NR
470	146	NR	600	635	NR	730	23	NR	860	1	NR	990	0	NR
475	126	NR	605	599	NR	735	19	NR	865	0	NR	995	0	NR
480	126	NR	610	561	NR	740	17	NR	870	0	NR	1000	0	NR
485	144	NR	615	517	NR	745	15	NR	875	0	NR			

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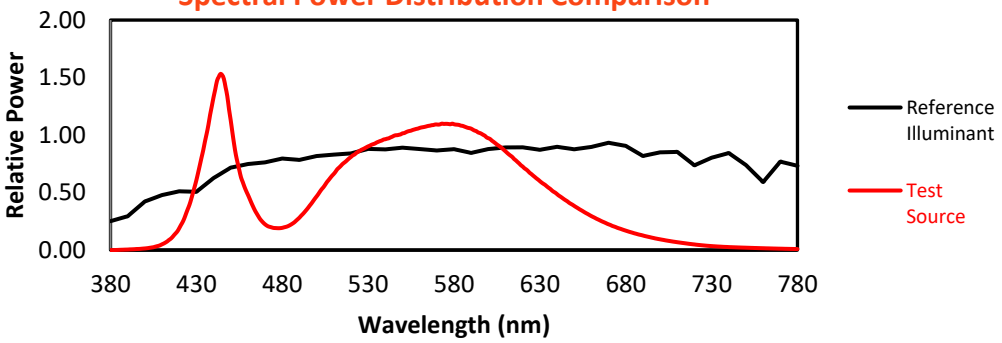
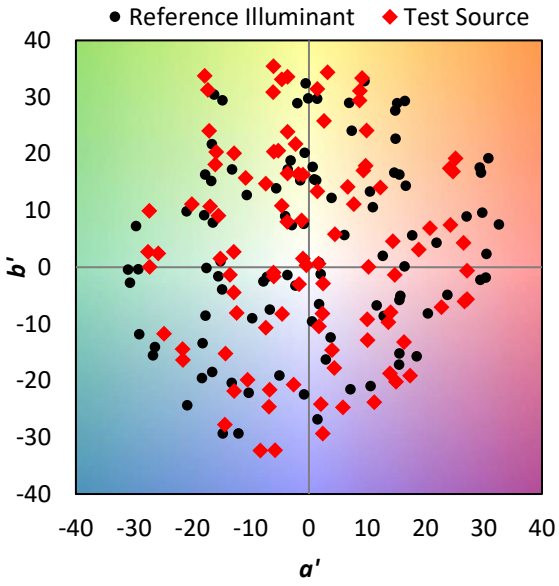
Summary

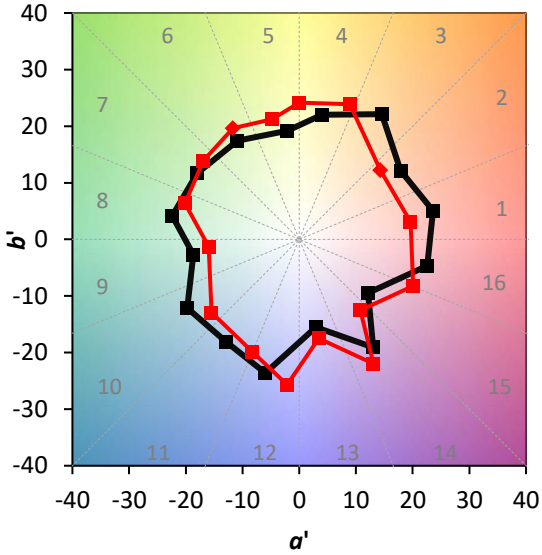
R_f = 73.1
R_g = 94.9
CIE R_a = 70.8
R_9 = -40.0

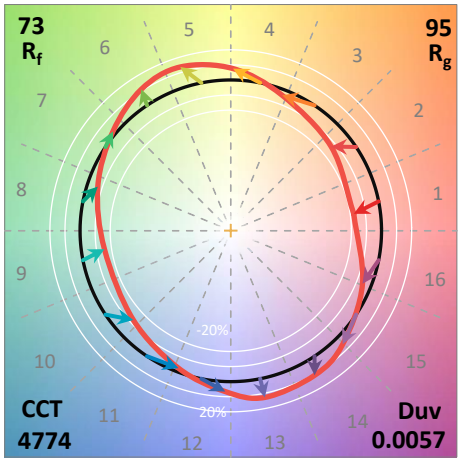
Spectral Power Distribution Comparison

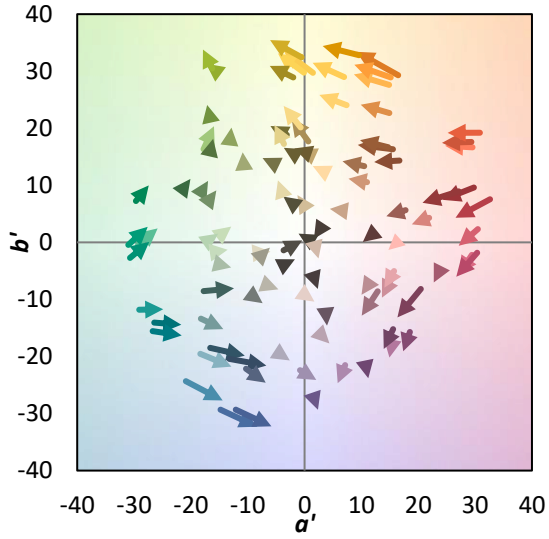


Color Vector Graphics









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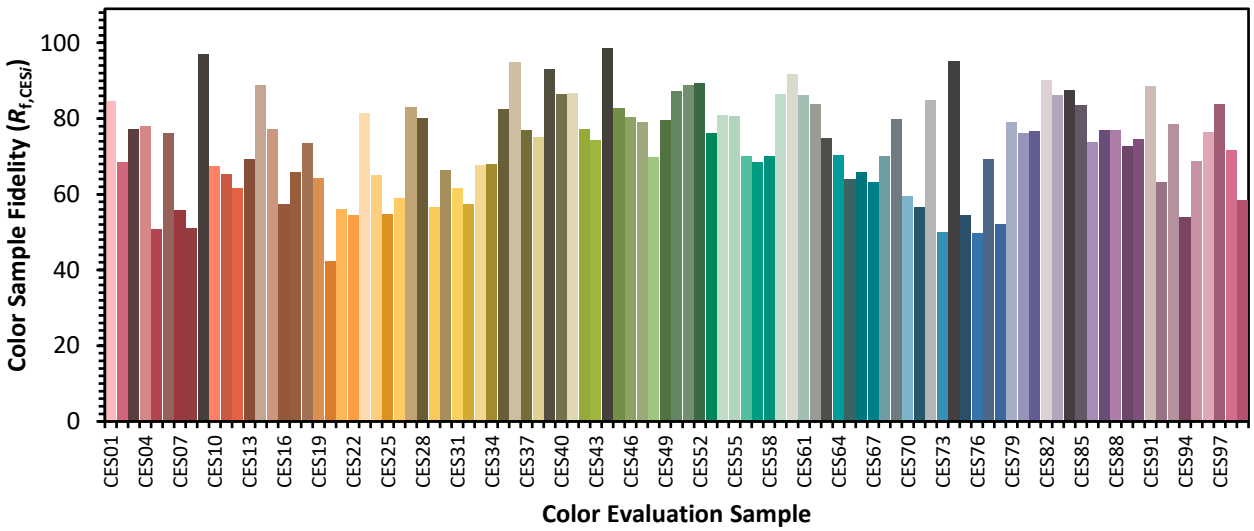
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 59	CES51 = 89	CES76 = 50
CES02 = 59	CES27 = 83	CES52 = 89	CES77 = 69
CES03 = 30	CES28 = 80	CES53 = 76	CES78 = 52
CES04 = 69	CES29 = 57	CES54 = 81	CES79 = 79
CES05 = 46	CES30 = 66	CES55 = 81	CES80 = 76
CES06 = 50	CES31 = 62	CES56 = 70	CES81 = 77
CES07 = 39	CES32 = 57	CES57 = 69	CES82 = 90
CES08 = 38	CES33 = 68	CES58 = 70	CES83 = 86
CES09 = 29	CES34 = 68	CES59 = 86	CES84 = 88
CES10 = 73	CES35 = 83	CES60 = 92	CES85 = 84
CES11 = 56	CES36 = 95	CES61 = 86	CES86 = 74
CES12 = 61	CES37 = 77	CES62 = 84	CES87 = 77
CES13 = 41	CES38 = 75	CES63 = 75	CES88 = 77
CES14 = 74	CES39 = 93	CES64 = 70	CES89 = 73
CES15 = 70	CES40 = 86	CES65 = 64	CES90 = 75
CES16 = 46	CES41 = 87	CES66 = 66	CES91 = 89
CES17 = 49	CES42 = 77	CES67 = 63	CES92 = 63
CES18 = 55	CES43 = 74	CES68 = 70	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 80	CES94 = 54
CES20 = 64	CES45 = 83	CES70 = 60	CES95 = 69
CES21 = 85	CES46 = 80	CES71 = 57	CES96 = 76
CES22 = 77	CES47 = 79	CES72 = 85	CES97 = 84
CES23 = 91	CES48 = 70	CES73 = 50	CES98 = 72
CES24 = 90	CES49 = 80	CES74 = 95	CES99 = 58
CES25 = 71	CES50 = 87	CES75 = 55	



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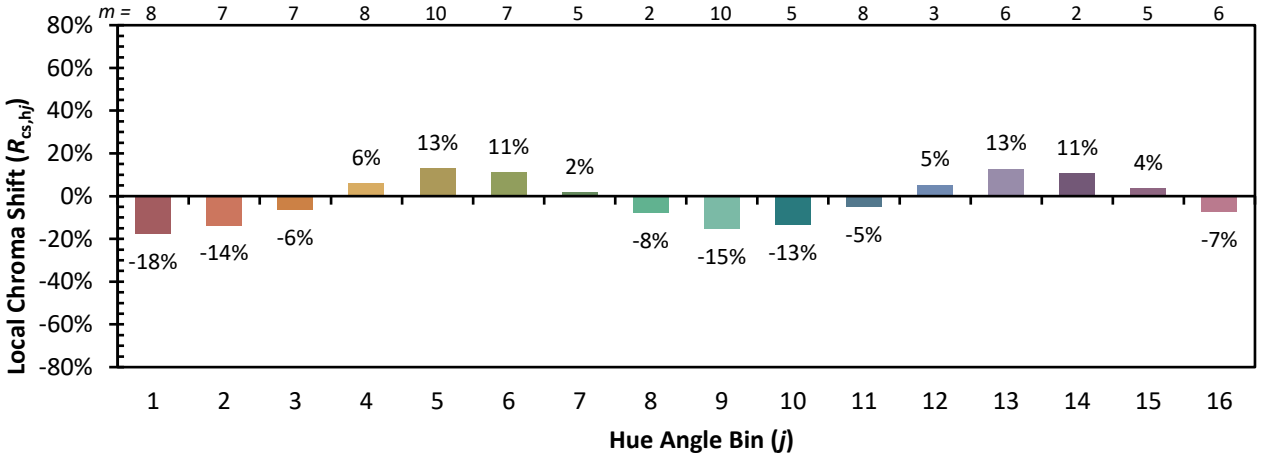
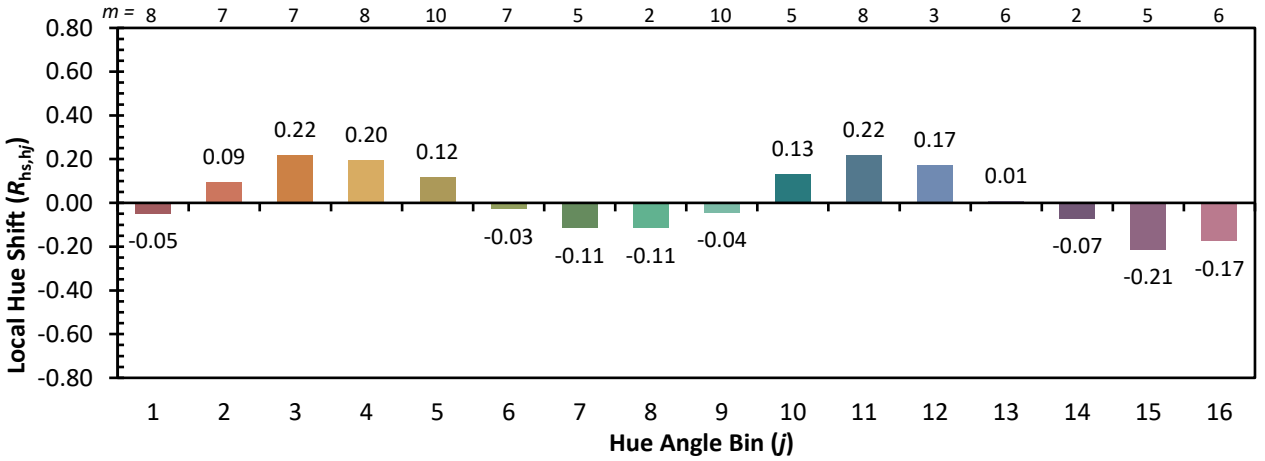
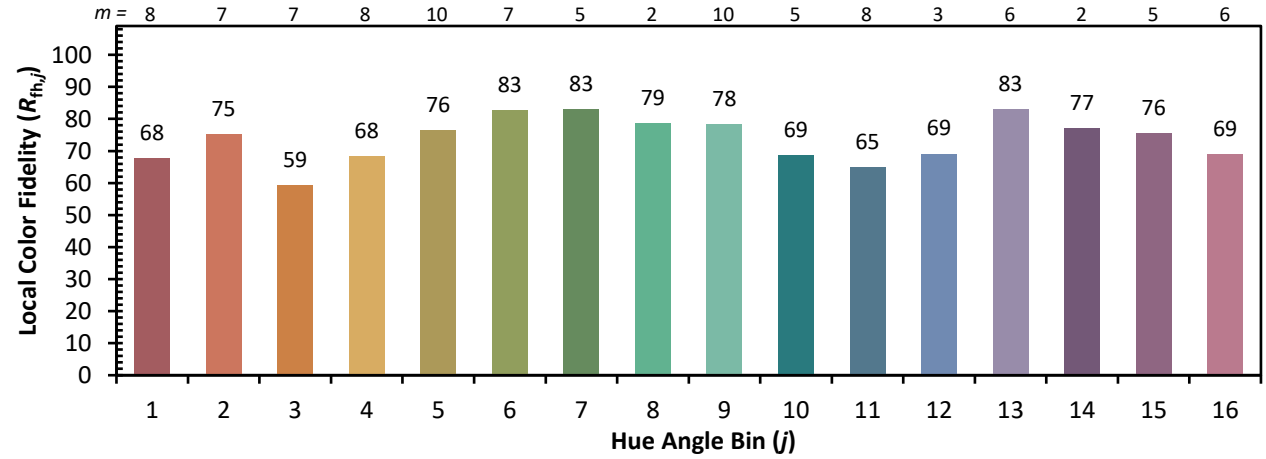
Color Rendition by Hue-Angle Bin







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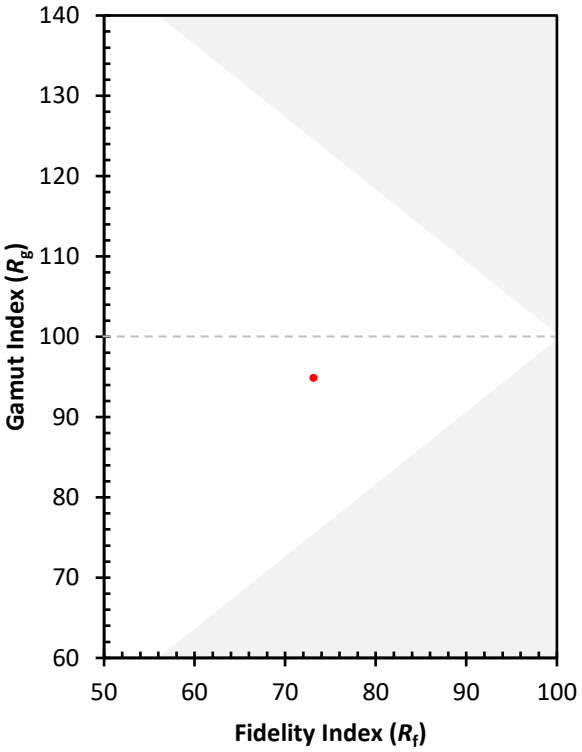
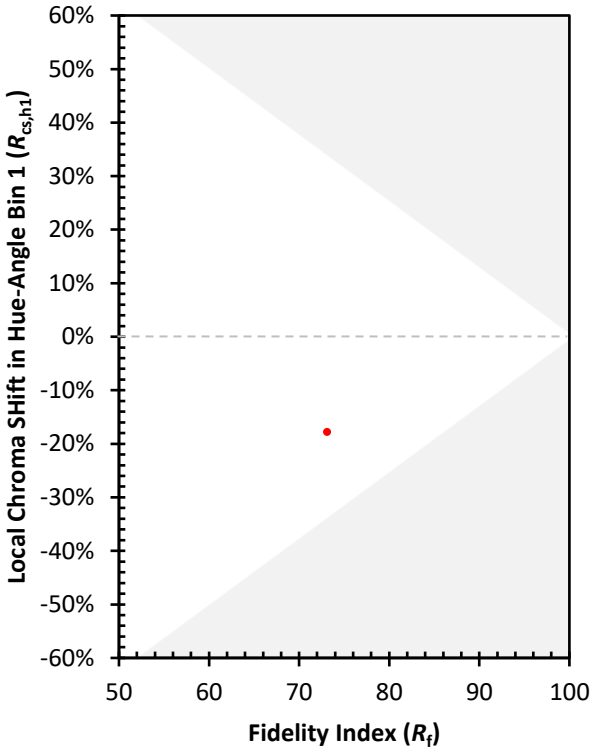
Measure Comparisons





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