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: P879693

Luminaire Tested: **EMM2-HTN-VA8-735-U-MQ**

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:	P879693
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HTN-VA8-735-U-MQ
Description:	EPIC MODERN TALL HOUSING 8W 70CRI 3500K WAVESTREAM FIXTURE w/ TYPE V MEDIUM DISTRIBUTION OPTIC
Light Source:	(1) 3500K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	17257.5 lumens
Efficiency:	N/A
Efficacy:	110.6 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G3

Input Watts (W):	156
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.995
Total Harmonic Distortion (THDi):	6.6%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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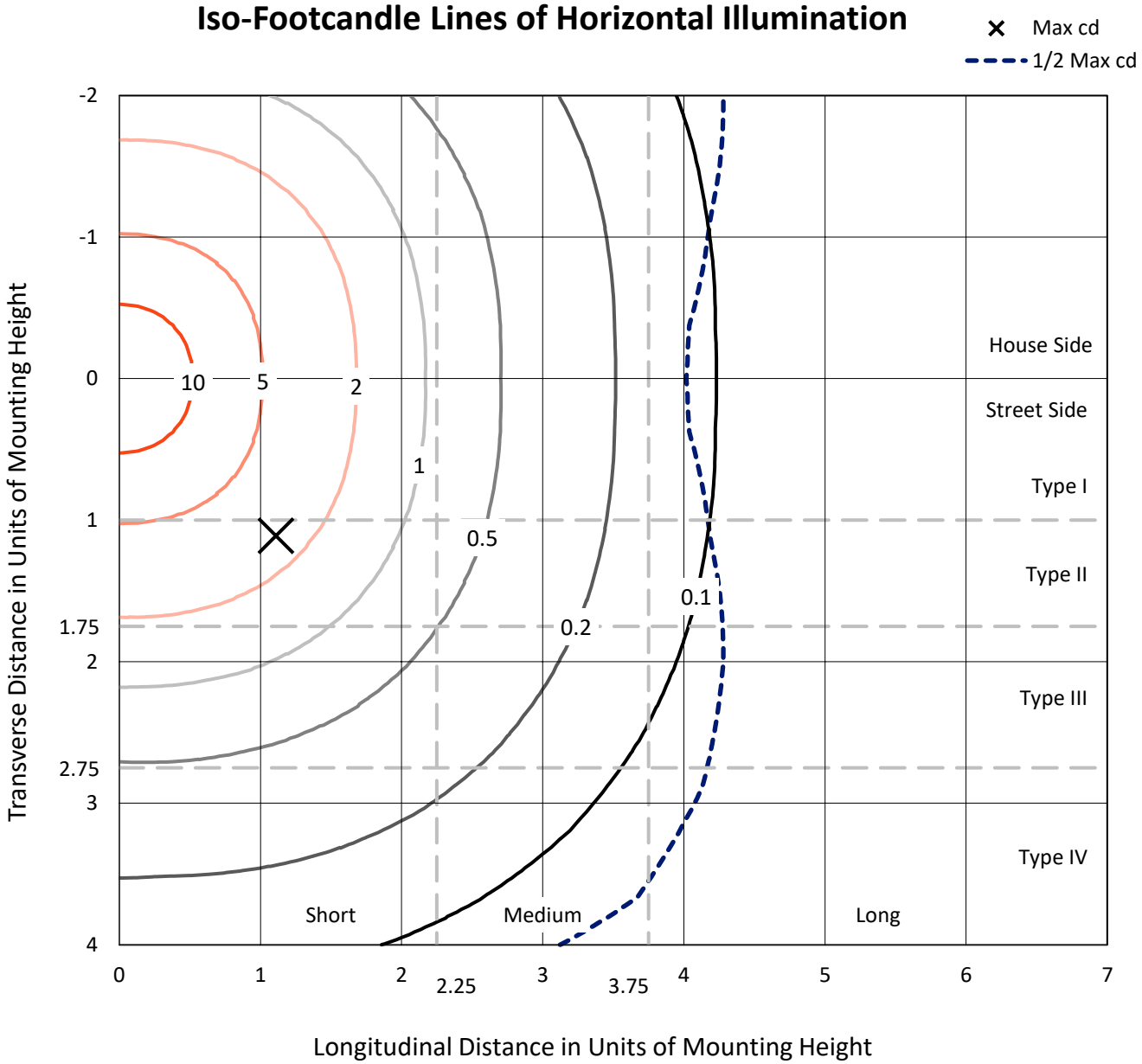
Scaled Data Report

REPORT NUMBER: P879693
CATALOG NUMBER: EMM2-HTN-VA8-735-U-MQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 15.5 fc
Type V - Short - N/A

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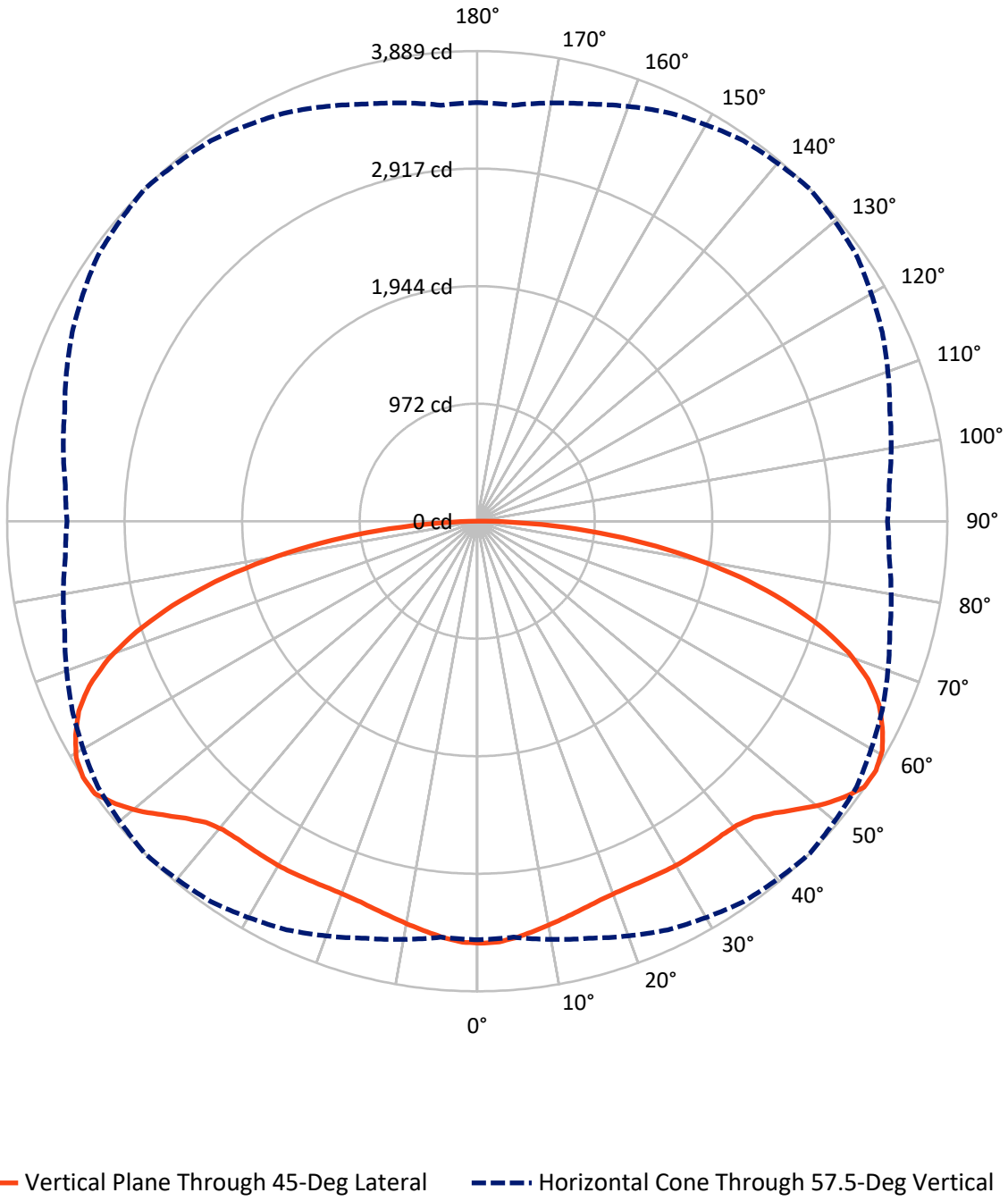
Luminous Intensity Polar Plot



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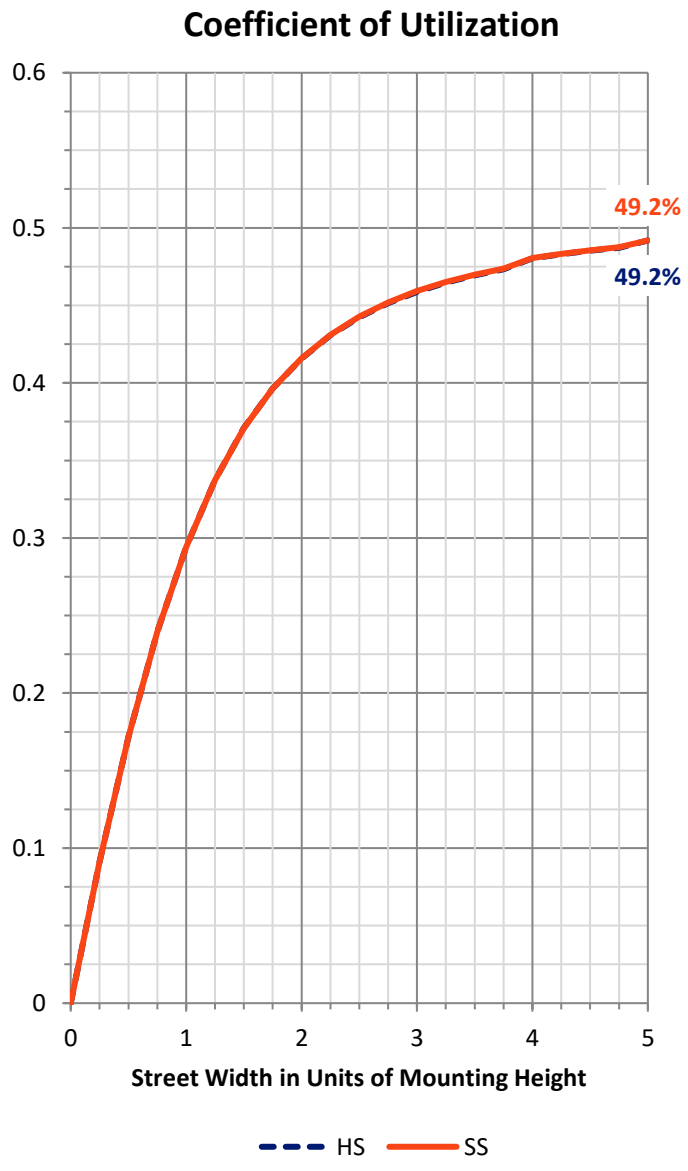
REPORT NUMBER: P879693
CATALOG NUMBER: EMM2-HTN-VA8-735-U-MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	8628.7	0.0	8628.7
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	8628.7	0.0	8628.7
	% Fixture	50.0	0.0	50.0
Total	Lumens	17257.5	0.0	17257.5
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	327.7	1.9
10°-20°	939.4	5.4
20°-30°	1509.6	8.7
30°-40°	2046.4	11.9
40°-50°	2613.5	15.1
50°-60°	3257.6	18.9
60°-70°	3319.4	19.2
70°-80°	2459.5	14.3
80°-90°	784.3	4.5
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°	17257.5	100.0
0°-180°	17257.5	100.0



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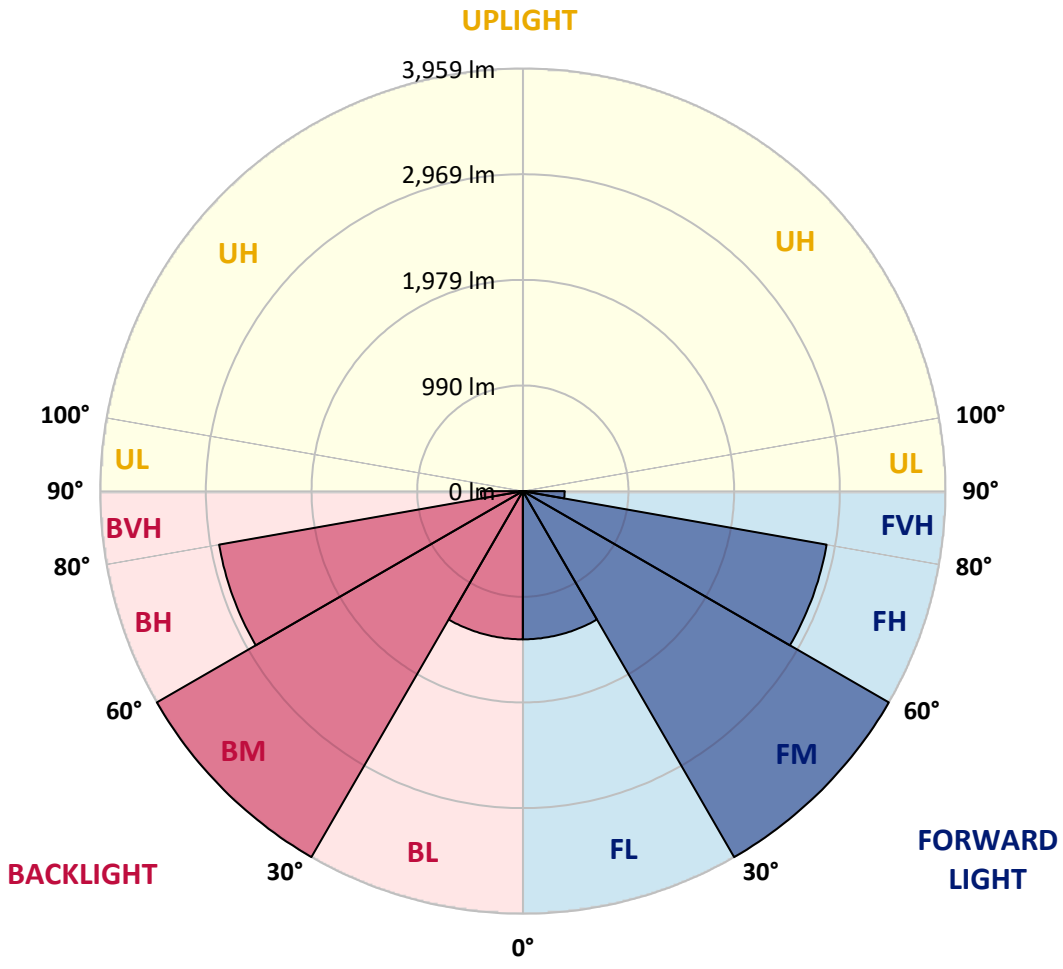
REPORT NUMBER: P879693
CATALOG NUMBER: EMM2-HTN-VA8-735-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	1388.4	8.0			
FM	(30°-60°)	3958.7	22.9			
FH	(60°-80°)	2889.5	16.7			G2/5000
FVH	(80°-90°)	392.1	2.3			G3/500
BL	(0°-30°)	1388.4	8.0	B3/2500		
BM	(30°-60°)	3958.7	22.9	B3/5000		
BH	(60°-80°)	2889.5	16.7	B4/5000		G2/5000
BVH	(80°-90°)	392.1	2.3			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G3
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	3491.1	3491.1	3491.1	3491.1	3491.1	3491.1	3491.1	3491.1	3491.1	3491.1	3491.1
2.5°	3485.1	3485.1	3484.2	3484.2	3483.4	3484.2	3485.1	3485.1	3484.2	3483.4	3482.5
5°	3460.2	3461.0	3461.0	3459.3	3457.6	3457.6	3457.6	3458.4	3456.7	3457.6	3456.7
7.5°	3424.1	3421.5	3424.1	3423.2	3424.1	3421.5	3425.8	3424.1	3421.5	3423.2	3423.2
10°	3383.7	3384.6	3385.4	3384.6	3387.1	3386.3	3385.4	3384.6	3382.8	3384.6	3382.0
12.5°	3345.9	3346.8	3349.3	3350.2	3352.8	3351.9	3352.8	3351.1	3350.2	3346.8	3345.9
15°	3309.8	3311.6	3315.0	3317.6	3320.1	3321.0	3319.3	3318.4	3314.1	3311.6	3309.8
17.5°	3279.8	3279.8	3284.9	3289.2	3293.5	3294.4	3293.5	3289.2	3283.2	3277.2	3278.0
20°	3259.1	3259.1	3265.2	3272.0	3278.0	3279.8	3277.2	3269.5	3260.0	3255.7	3254.9
22.5°	3249.7	3250.6	3256.6	3264.3	3272.9	3274.6	3269.5	3260.0	3249.7	3242.0	3241.1
25°	3250.6	3248.8	3254.0	3266.0	3275.5	3277.2	3272.9	3260.0	3248.0	3241.1	3238.5
27.5°	3248.0	3248.8	3254.9	3266.9	3278.9	3282.3	3275.5	3260.0	3243.7	3237.7	3236.0
30°	3247.1	3248.0	3249.7	3269.5	3283.2	3289.2	3278.9	3258.3	3244.5	3235.1	3234.2
32.5°	3243.7	3239.4	3251.4	3263.4	3280.6	3288.4	3278.0	3259.1	3236.8	3229.9	3226.5
35°	3229.9	3234.2	3244.5	3265.2	3284.9	3290.1	3278.0	3254.9	3235.1	3221.4	3220.5
37.5°	3227.4	3227.4	3243.7	3265.2	3284.9	3292.7	3282.3	3256.6	3229.1	3211.9	3211.9
40°	3223.9	3223.1	3244.5	3271.2	3296.9	3307.3	3293.5	3261.7	3228.2	3211.9	3203.3
42.5°	3233.4	3238.5	3263.4	3302.1	3334.7	3351.9	3332.2	3296.9	3257.4	3226.5	3225.6
45°	3278.0	3289.2	3315.0	3380.3	3424.1	3444.7	3421.5	3360.5	3298.7	3257.4	3254.9
47.5°	3347.6	3344.2	3405.2	3473.9	3538.3	3560.7	3527.2	3455.9	3366.5	3316.7	3303.8
50°	3395.7	3404.3	3467.0	3566.7	3662.9	3688.7	3639.7	3547.8	3450.7	3382.0	3370.0
52.5°	3461.0	3462.7	3542.6	3668.9	3767.7	3796.0	3748.8	3634.5	3504.0	3418.1	3412.1
55°	3468.8	3497.1	3594.2	3731.6	3850.2	3883.7	3825.2	3703.3	3551.2	3444.7	3434.4
57.5°	3462.7	3454.1	3571.8	3729.9	3841.6	3888.8	3831.3	3696.4	3533.2	3420.6	3393.2
60°	3339.0	3375.1	3504.8	3659.5	3802.9	3850.2	3783.2	3645.7	3467.0	3343.3	3332.2
62.5°	3254.9	3270.3	3388.9	3596.7	3714.4	3761.7	3710.1	3548.6	3357.9	3229.1	3213.6
65°	3123.4	3135.4	3274.6	3445.6	3609.6	3651.7	3585.6	3449.9	3245.4	3103.7	3075.3
67.5°	2913.8	2946.5	3083.9	3301.2	3414.6	3486.8	3427.5	3236.8	3051.3	2912.1	2891.5
70°	2669.9	2713.7	2855.4	3033.2	3222.2	3258.3	3176.7	3047.0	2839.1	2690.5	2654.4
72.5°	2434.5	2437.9	2570.2	2779.0	2898.4	2965.4	2919.0	2748.0	2544.4	2418.2	2395.8
75°	2105.5	2106.3	2251.5	2422.5	2573.6	2617.5	2543.6	2423.3	2242.1	2100.3	2086.6
77.5°	1724.1	1747.3	1876.1	2041.0	2160.5	2224.0	2171.6	2035.9	1866.7	1745.5	1731.8
80°	1352.1	1381.3	1472.4	1620.1	1723.2	1779.0	1722.3	1603.8	1475.0	1356.4	1358.1
82.5°	954.4	975.9	1061.8	1162.3	1262.8	1304.0	1280.0	1192.3	1074.6	970.7	942.4
85°	532.6	560.1	617.6	706.1	773.1	826.4	796.3	727.6	625.4	560.1	558.4
87.5°	156.3	169.2	192.4	251.7	315.3	338.5	331.6	314.4	275.7	247.4	229.4
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: SP1-2407-176-8

Test Date: 09/25/2024

Luminaire Tested: MEM2-HTN-VA-130-735-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-735-U-RW

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

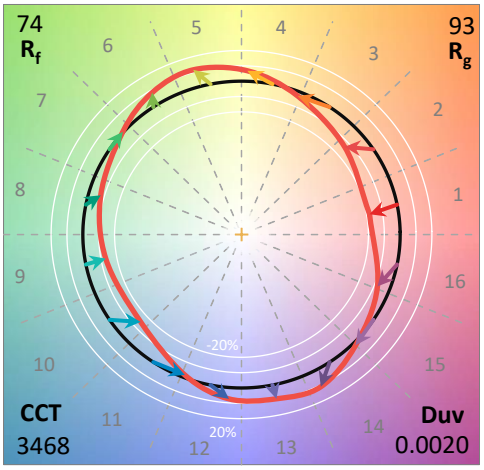
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-8
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-130-735-U-RW**
Description:	EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K):	3468	CRI (Ra):	70.6		
CIE u':	0.2356	R1:	66.2	R9:	-41.3
CIE v':	0.5145	R2:	79.1	R10:	52.2
Duv:	0.0020	R3:	90.8	R11:	63.6
CIE x:	0.4092	R4:	68.4	R12:	47.5
CIE y:	0.3972	R5:	66.3	R13:	68.3
CIE z:	0.1936	R6:	71.1	R14:	94.8
Peak Wavelength (nm):	590	R7:	78.4	R15:	57.6
Dominant Wavelength (nm):	580	R8:	44.5		
Purity:	42.03411				

Rf:	74.1
Rg:	93.4



Test Conditions

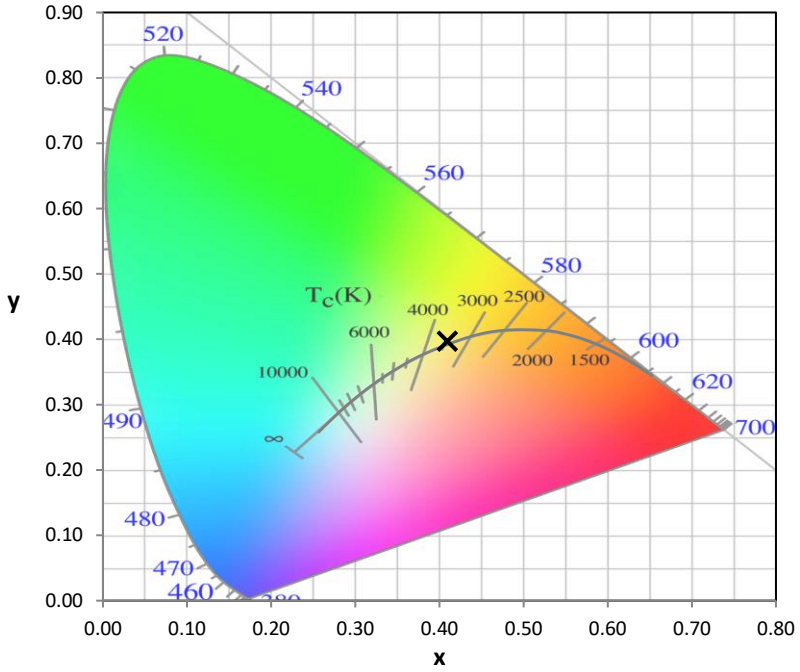
Stabilization Time:	46M
Operation Time:	1H 46M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-8

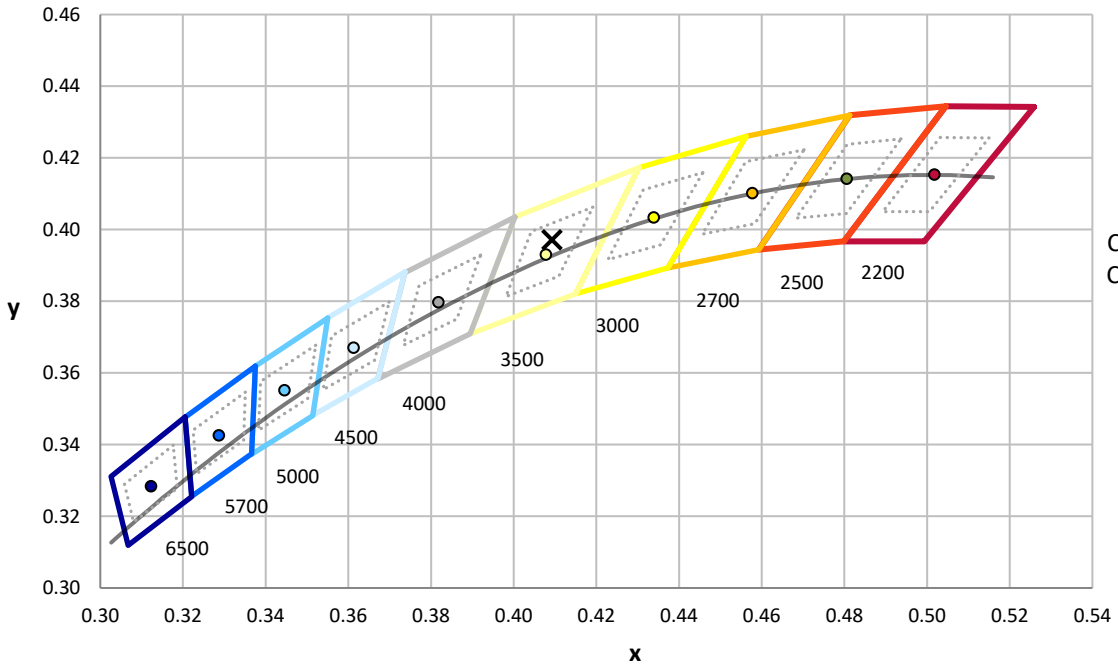
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-176-8

CIE 1931 Chromaticity Diagram



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



CCT = 3468K
CIE x = 0.4092
CIE y = 0.3972
Duv = 0.0020

Point lies inside the ANSI 3500K 4-step quadrangle

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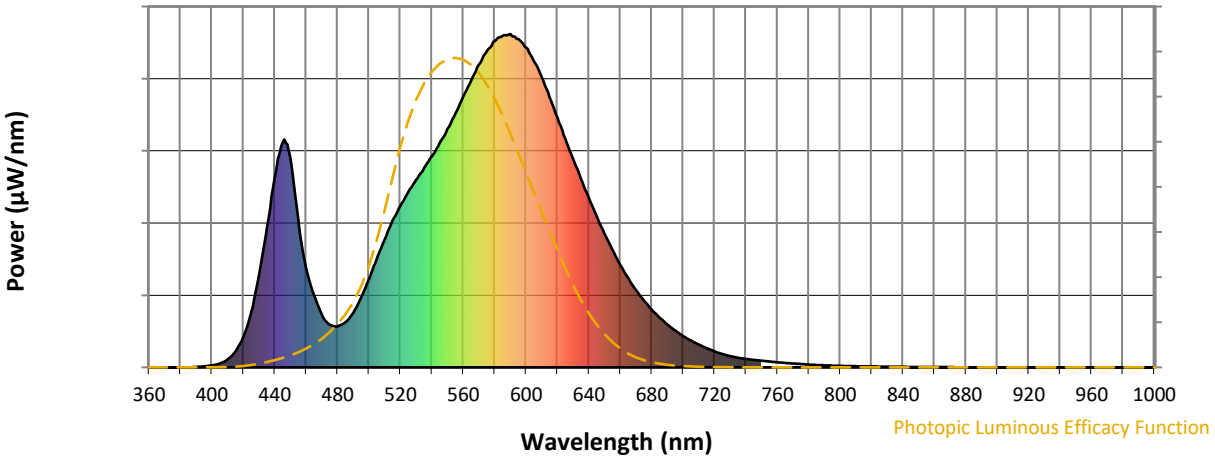
Photopic Flux vs. Wavelength

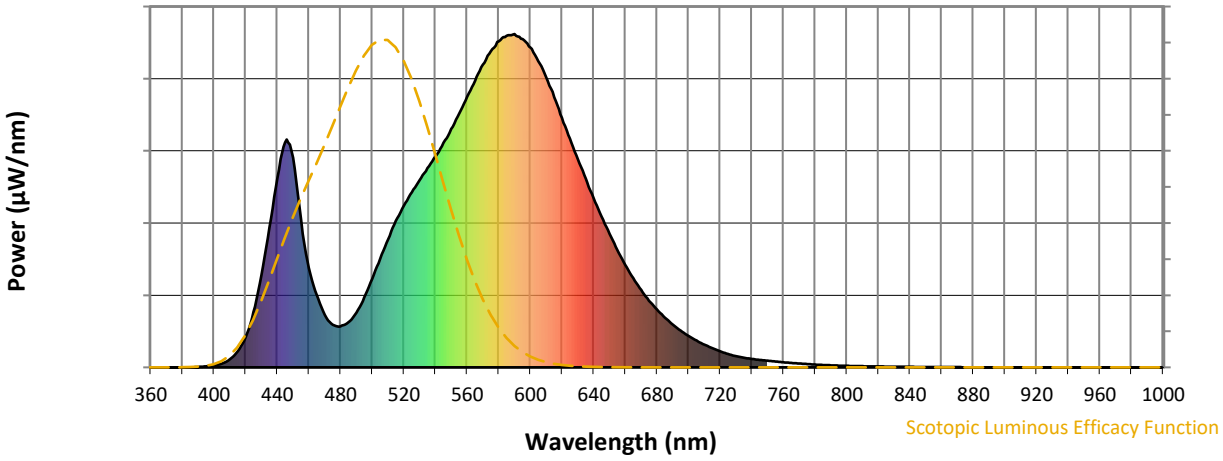


Photopic Lumens: NR

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	164	NR	620	749	NR	750	20	NR	880	0	NR
365	0	NR	495	209	NR	625	686	NR	755	17	NR	885	0	NR
370	0	NR	500	265	NR	630	624	NR	760	15	NR	890	0	NR
375	0	NR	505	325	NR	635	566	NR	765	13	NR	895	0	NR
380	0	NR	510	384	NR	640	508	NR	770	11	NR	900	0	NR
385	0	NR	515	439	NR	645	452	NR	775	10	NR	905	0	NR
390	1	NR	520	485	NR	650	401	NR	780	8	NR	910	0	NR
395	3	NR	525	526	NR	655	353	NR	785	7	NR	915	0	NR
400	6	NR	530	562	NR	660	308	NR	790	6	NR	920	0	NR
405	11	NR	535	598	NR	665	268	NR	795	5	NR	925	0	NR
410	24	NR	540	633	NR	670	232	NR	800	5	NR	930	0	NR
415	48	NR	545	674	NR	675	200	NR	805	4	NR	935	0	NR
420	91	NR	550	715	NR	680	174	NR	810	3	NR	940	0	NR
425	166	NR	555	761	NR	685	149	NR	815	3	NR	945	0	NR
430	276	NR	560	812	NR	690	129	NR	820	3	NR	950	0	NR
435	420	NR	565	860	NR	695	110	NR	825	2	NR	955	0	NR
440	568	NR	570	908	NR	700	94	NR	830	2	NR	960	0	NR
445	675	NR	575	948	NR	705	80	NR	835	2	NR	965	0	NR
450	629	NR	580	978	NR	710	68	NR	840	2	NR	970	0	NR
455	443	NR	585	994	NR	715	58	NR	845	1	NR	975	0	NR
460	299	NR	590	1000	NR	720	48	NR	850	1	NR	980	0	NR
465	217	NR	595	985	NR	725	40	NR	855	1	NR	985	0	NR
470	157	NR	600	959	NR	730	34	NR	860	1	NR	990	0	NR
475	127	NR	605	918	NR	735	29	NR	865	1	NR	995	0	NR
480	123	NR	610	869	NR	740	25	NR	870	1	NR	1000	0	NR
485	135	NR	615	810	NR	745	22	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-8

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.35**

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	164	NR	620	749	NR	750	20	NR	880	0	NR
365	0	NR	495	209	NR	625	686	NR	755	17	NR	885	0	NR
370	0	NR	500	265	NR	630	624	NR	760	15	NR	890	0	NR
375	0	NR	505	325	NR	635	566	NR	765	13	NR	895	0	NR
380	0	NR	510	384	NR	640	508	NR	770	11	NR	900	0	NR
385	0	NR	515	439	NR	645	452	NR	775	10	NR	905	0	NR
390	1	NR	520	485	NR	650	401	NR	780	8	NR	910	0	NR
395	3	NR	525	526	NR	655	353	NR	785	7	NR	915	0	NR
400	6	NR	530	562	NR	660	308	NR	790	6	NR	920	0	NR
405	11	NR	535	598	NR	665	268	NR	795	5	NR	925	0	NR
410	24	NR	540	633	NR	670	232	NR	800	5	NR	930	0	NR
415	48	NR	545	674	NR	675	200	NR	805	4	NR	935	0	NR
420	91	NR	550	715	NR	680	174	NR	810	3	NR	940	0	NR
425	166	NR	555	761	NR	685	149	NR	815	3	NR	945	0	NR
430	276	NR	560	812	NR	690	129	NR	820	3	NR	950	0	NR
435	420	NR	565	860	NR	695	110	NR	825	2	NR	955	0	NR
440	568	NR	570	908	NR	700	94	NR	830	2	NR	960	0	NR
445	675	NR	575	948	NR	705	80	NR	835	2	NR	965	0	NR
450	629	NR	580	978	NR	710	68	NR	840	2	NR	970	0	NR
455	443	NR	585	994	NR	715	58	NR	845	1	NR	975	0	NR
460	299	NR	590	1000	NR	720	48	NR	850	1	NR	980	0	NR
465	217	NR	595	985	NR	725	40	NR	855	1	NR	985	0	NR
470	157	NR	600	959	NR	730	34	NR	860	1	NR	990	0	NR
475	127	NR	605	918	NR	735	29	NR	865	1	NR	995	0	NR
480	123	NR	610	869	NR	740	25	NR	870	1	NR	1000	0	NR
485	135	NR	615	810	NR	745	22	NR	875	0	NR			

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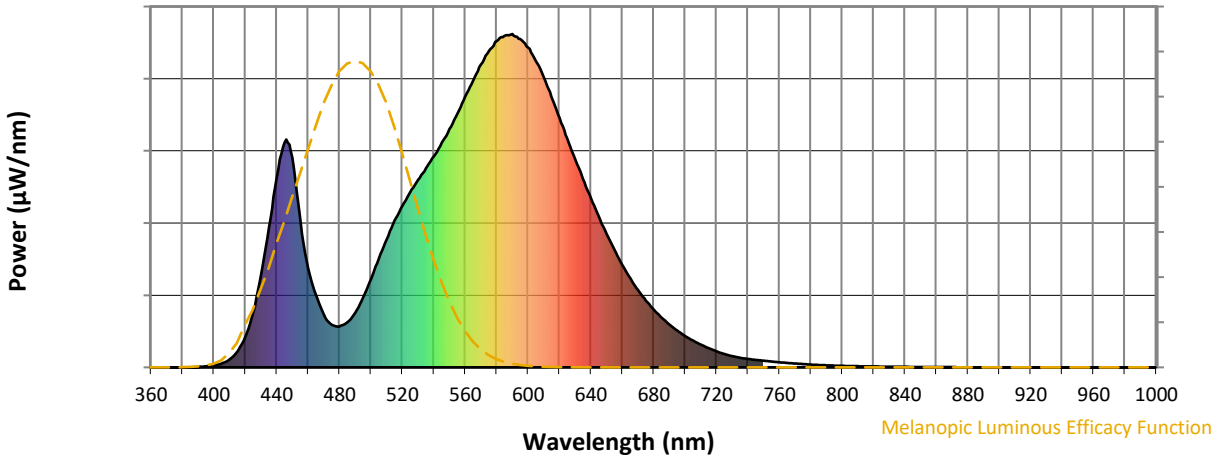
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.54**

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	164	NR	620	749	NR	750	20	NR	880	0	NR
365	0	NR	495	209	NR	625	686	NR	755	17	NR	885	0	NR
370	0	NR	500	265	NR	630	624	NR	760	15	NR	890	0	NR
375	0	NR	505	325	NR	635	566	NR	765	13	NR	895	0	NR
380	0	NR	510	384	NR	640	508	NR	770	11	NR	900	0	NR
385	0	NR	515	439	NR	645	452	NR	775	10	NR	905	0	NR
390	1	NR	520	485	NR	650	401	NR	780	8	NR	910	0	NR
395	3	NR	525	526	NR	655	353	NR	785	7	NR	915	0	NR
400	6	NR	530	562	NR	660	308	NR	790	6	NR	920	0	NR
405	11	NR	535	598	NR	665	268	NR	795	5	NR	925	0	NR
410	24	NR	540	633	NR	670	232	NR	800	5	NR	930	0	NR
415	48	NR	545	674	NR	675	200	NR	805	4	NR	935	0	NR
420	91	NR	550	715	NR	680	174	NR	810	3	NR	940	0	NR
425	166	NR	555	761	NR	685	149	NR	815	3	NR	945	0	NR
430	276	NR	560	812	NR	690	129	NR	820	3	NR	950	0	NR
435	420	NR	565	860	NR	695	110	NR	825	2	NR	955	0	NR
440	568	NR	570	908	NR	700	94	NR	830	2	NR	960	0	NR
445	675	NR	575	948	NR	705	80	NR	835	2	NR	965	0	NR
450	629	NR	580	978	NR	710	68	NR	840	2	NR	970	0	NR
455	443	NR	585	994	NR	715	58	NR	845	1	NR	975	0	NR
460	299	NR	590	1000	NR	720	48	NR	850	1	NR	980	0	NR
465	217	NR	595	985	NR	725	40	NR	855	1	NR	985	0	NR
470	157	NR	600	959	NR	730	34	NR	860	1	NR	990	0	NR
475	127	NR	605	918	NR	735	29	NR	865	1	NR	995	0	NR
480	123	NR	610	869	NR	740	25	NR	870	1	NR	1000	0	NR
485	135	NR	615	810	NR	745	22	NR	875	0	NR			

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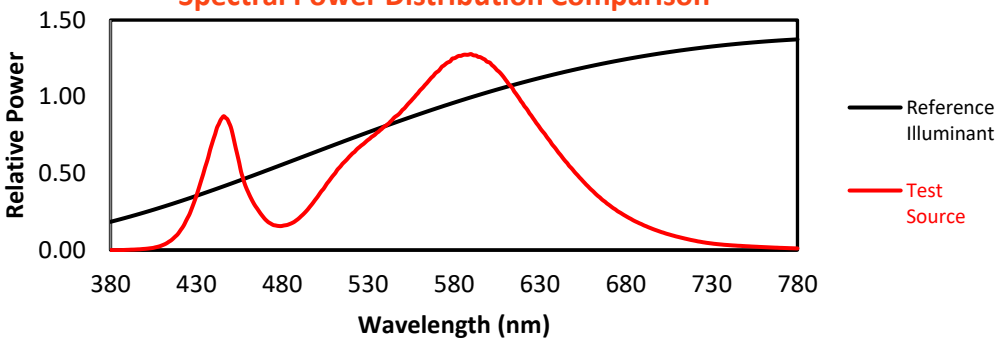
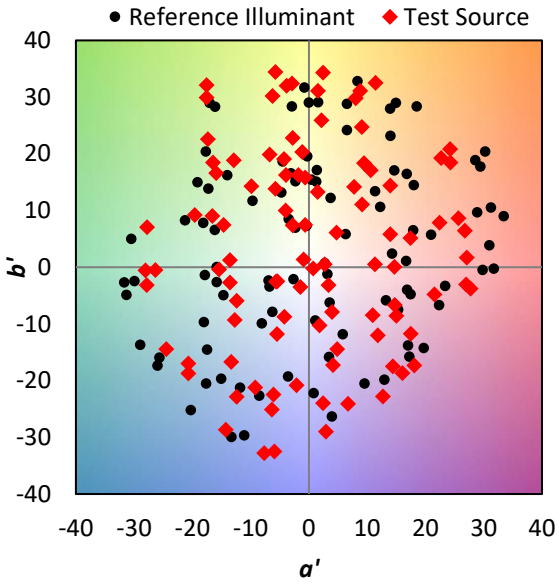
Summary

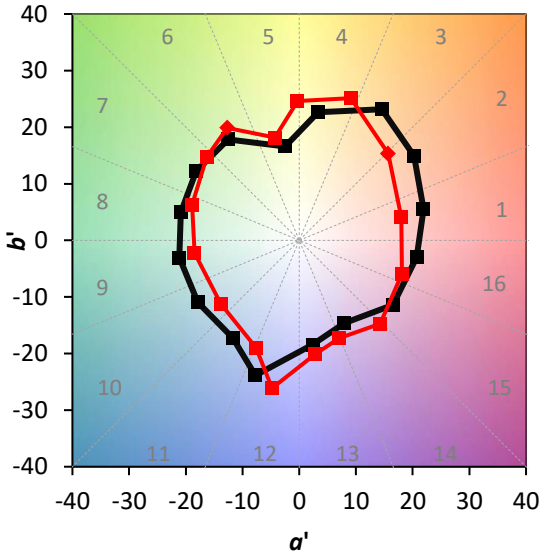
R_f = 74.1
R_g = 93.4
CIE R_a = 70.6
R_9 = -41.3

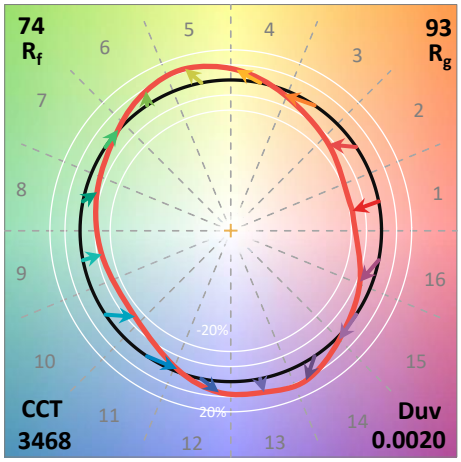
Spectral Power Distribution Comparison

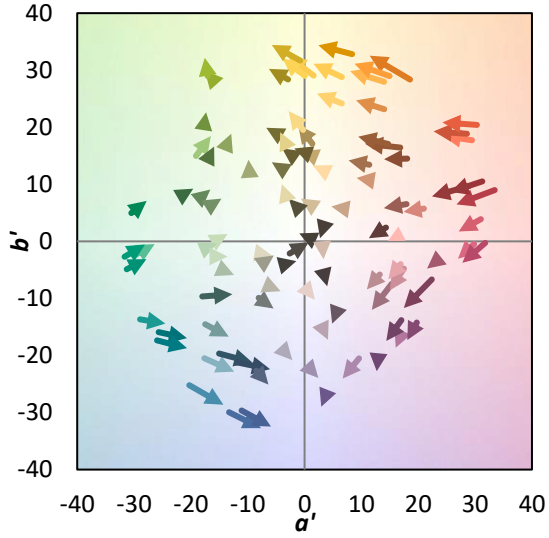


Color Vector Graphics









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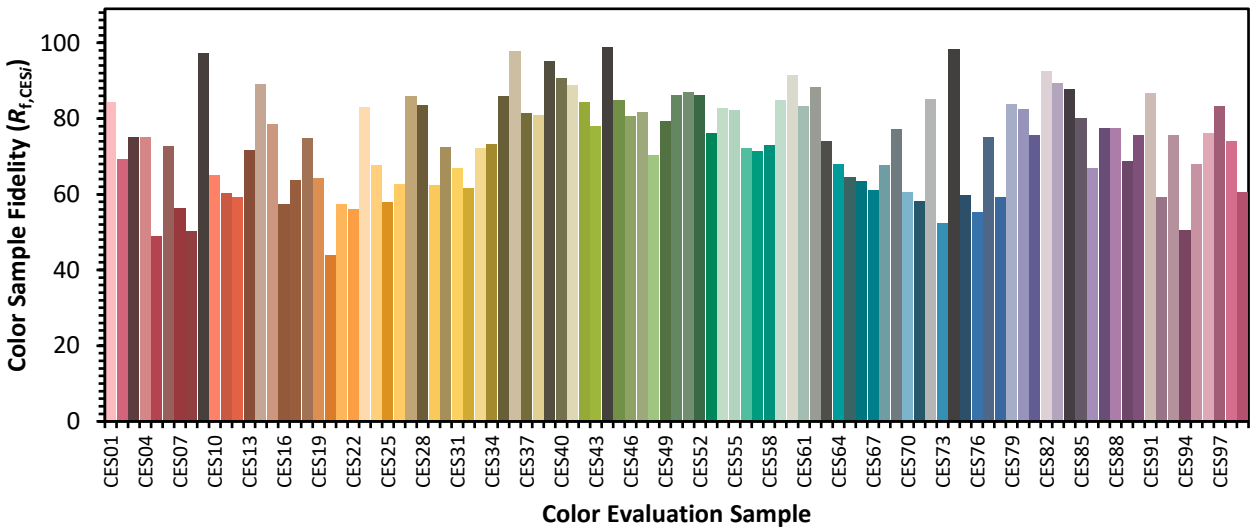
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 63	CES51 = 87	CES76 = 55
CES02 = 61	CES27 = 86	CES52 = 86	CES77 = 75
CES03 = 31	CES28 = 84	CES53 = 76	CES78 = 59
CES04 = 70	CES29 = 62	CES54 = 83	CES79 = 84
CES05 = 48	CES30 = 72	CES55 = 82	CES80 = 82
CES06 = 51	CES31 = 67	CES56 = 72	CES81 = 76
CES07 = 40	CES32 = 62	CES57 = 71	CES82 = 93
CES08 = 39	CES33 = 72	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 85	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 92	CES85 = 80
CES11 = 58	CES36 = 98	CES61 = 83	CES86 = 67
CES12 = 64	CES37 = 82	CES62 = 88	CES87 = 78
CES13 = 42	CES38 = 81	CES63 = 74	CES88 = 77
CES14 = 74	CES39 = 95	CES64 = 68	CES89 = 69
CES15 = 71	CES40 = 91	CES65 = 64	CES90 = 76
CES16 = 47	CES41 = 89	CES66 = 63	CES91 = 87
CES17 = 50	CES42 = 84	CES67 = 61	CES92 = 59
CES18 = 56	CES43 = 78	CES68 = 68	CES93 = 76
CES19 = 72	CES44 = 99	CES69 = 77	CES94 = 50
CES20 = 65	CES45 = 85	CES70 = 61	CES95 = 68
CES21 = 87	CES46 = 81	CES71 = 58	CES96 = 76
CES22 = 79	CES47 = 82	CES72 = 85	CES97 = 83
CES23 = 92	CES48 = 70	CES73 = 52	CES98 = 74
CES24 = 91	CES49 = 79	CES74 = 98	CES99 = 61
CES25 = 72	CES50 = 86	CES75 = 60	



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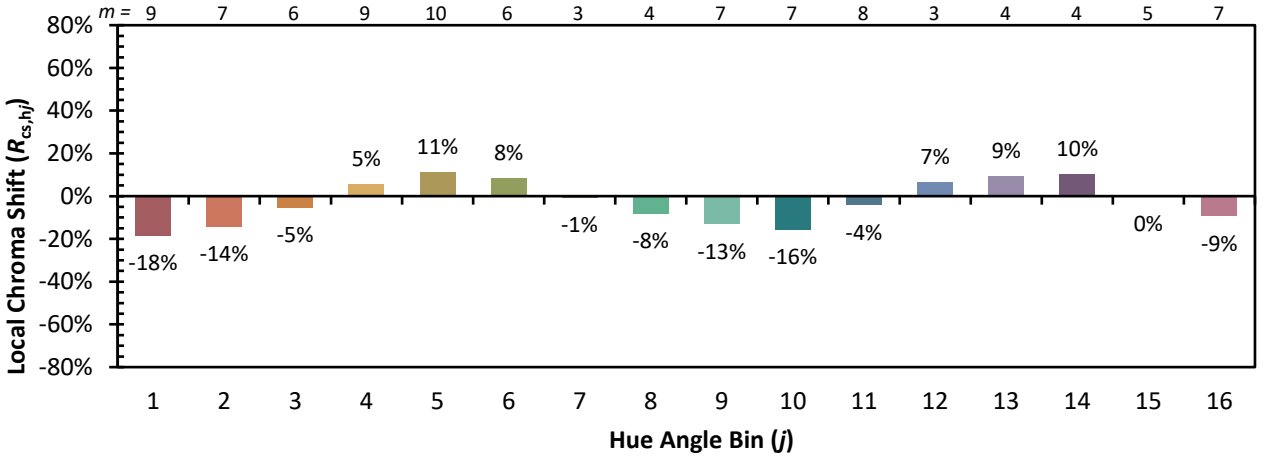
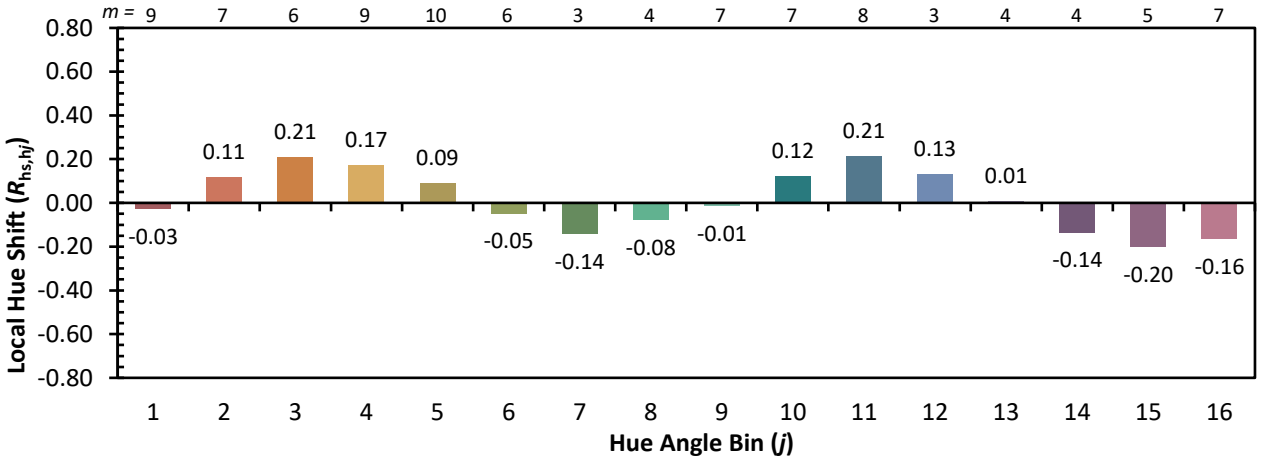
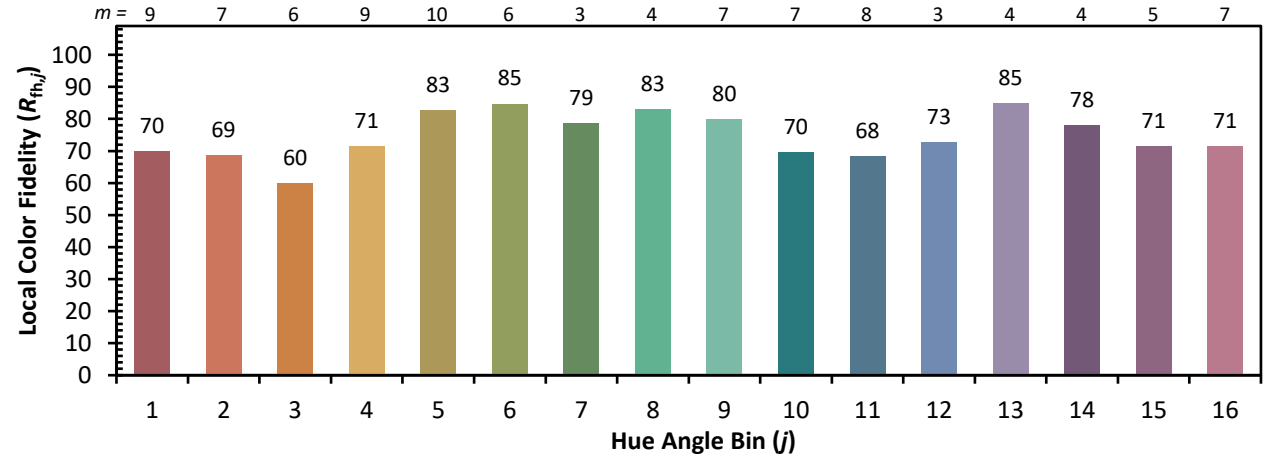
Color Rendition by Hue-Angle Bin







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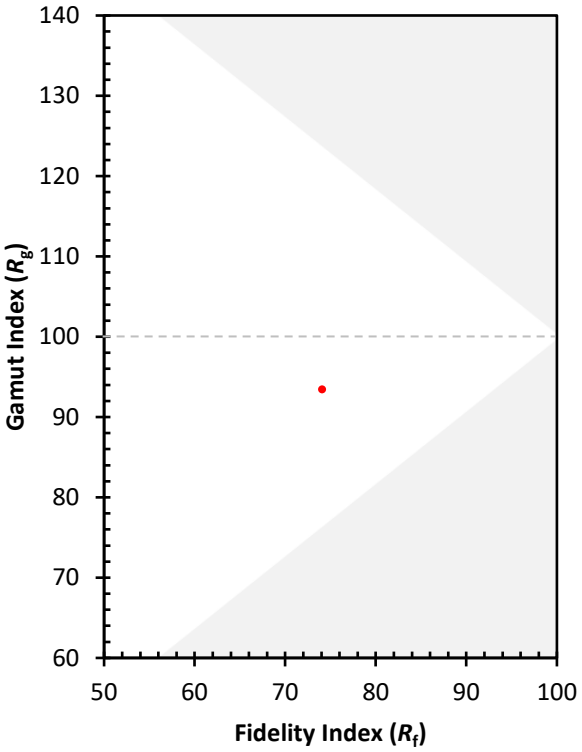
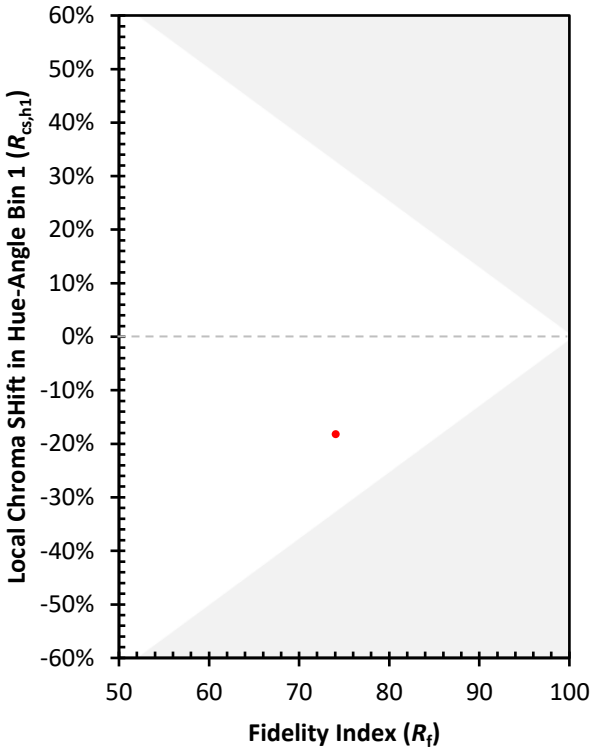
Measure Comparisons





(END OF REPORT)