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: P879730

Luminaire Tested: **EMM2-HTN-VA9-735-U-CQ**

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:	P879730
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HTN-VA9-735-U-CQ
Description:	EPIC MODERN TALL HOUSING 9W 70CRI 3500K WAVESTREAM FIXTURE w/ TYPE V CONCENTRATED DISTRIBUTION OPTIC
Light Source:	(1) 3500K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	15114.1 lumens
Efficiency:	N/A
Efficacy:	88.9 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G2

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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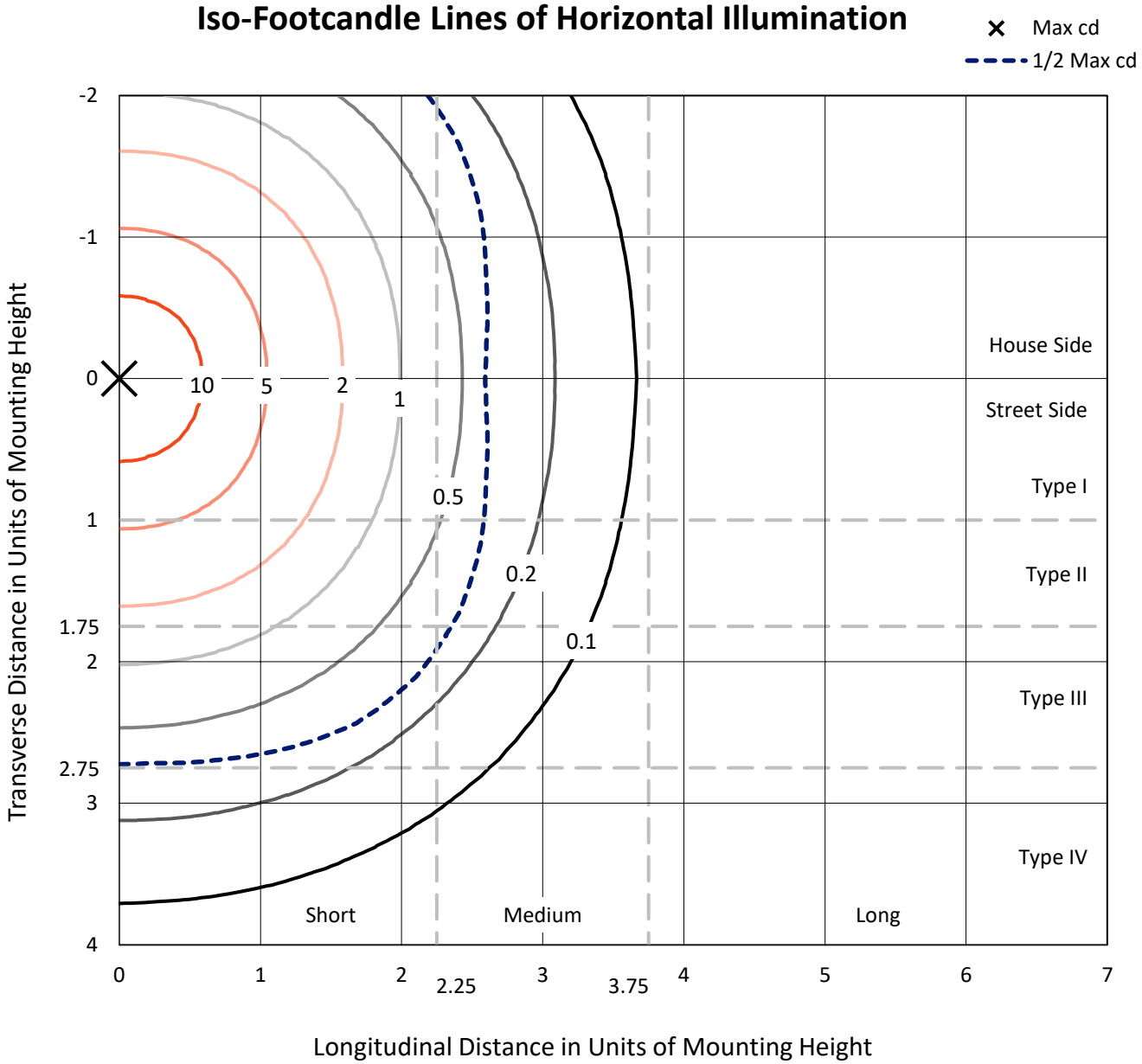
Scaled Data Report

REPORT NUMBER: P879730
CATALOG NUMBER: EMM2-HTN-VA9-735-U-CQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 16.8 fc
Type V - Short - N/A

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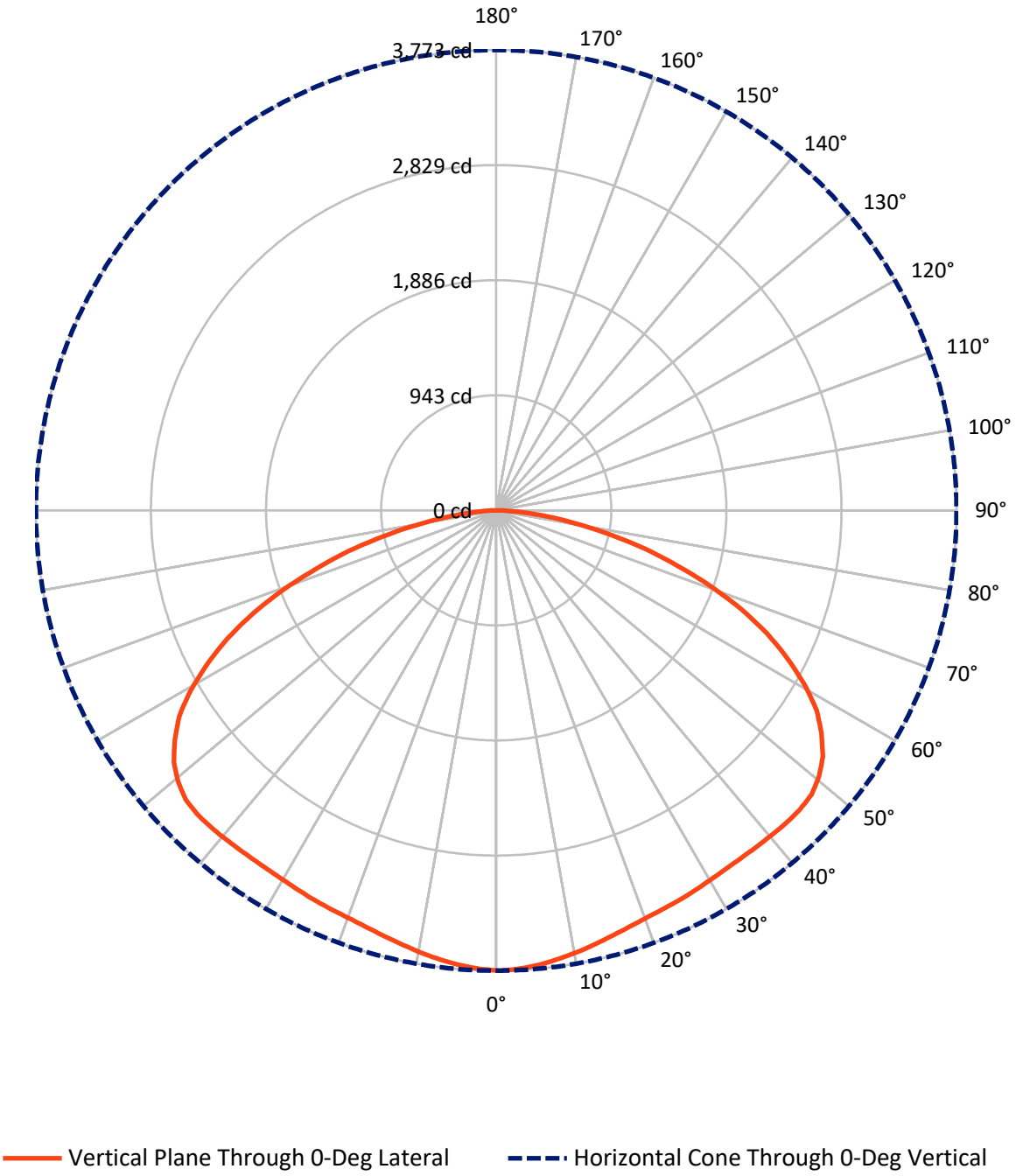
Luminous Intensity Polar Plot



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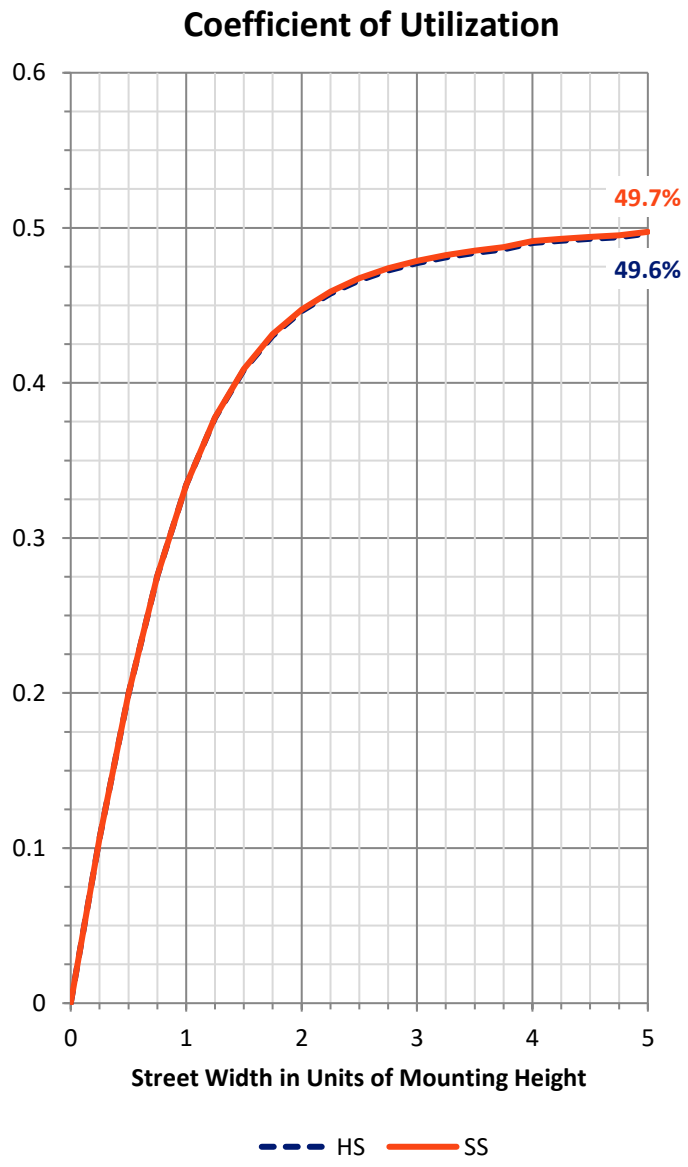
REPORT NUMBER: P879730
CATALOG NUMBER: EMM2-HTN-VA9-735-U-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	7557.0	0.0	7557.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	7557.0	0.0	7557.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	15114.1	0.0	15114.1
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	355.5	2.4
10°-20°	1025.8	6.8
20°-30°	1642.4	10.9
30°-40°	2224.8	14.7
40°-50°	2747.5	18.2
50°-60°	2951.9	19.5
60°-70°	2482.3	16.4
70°-80°	1386.1	9.2
80°-90°	297.8	2.0
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°	15114.1	100.0
0°-180°	15114.1	100.0



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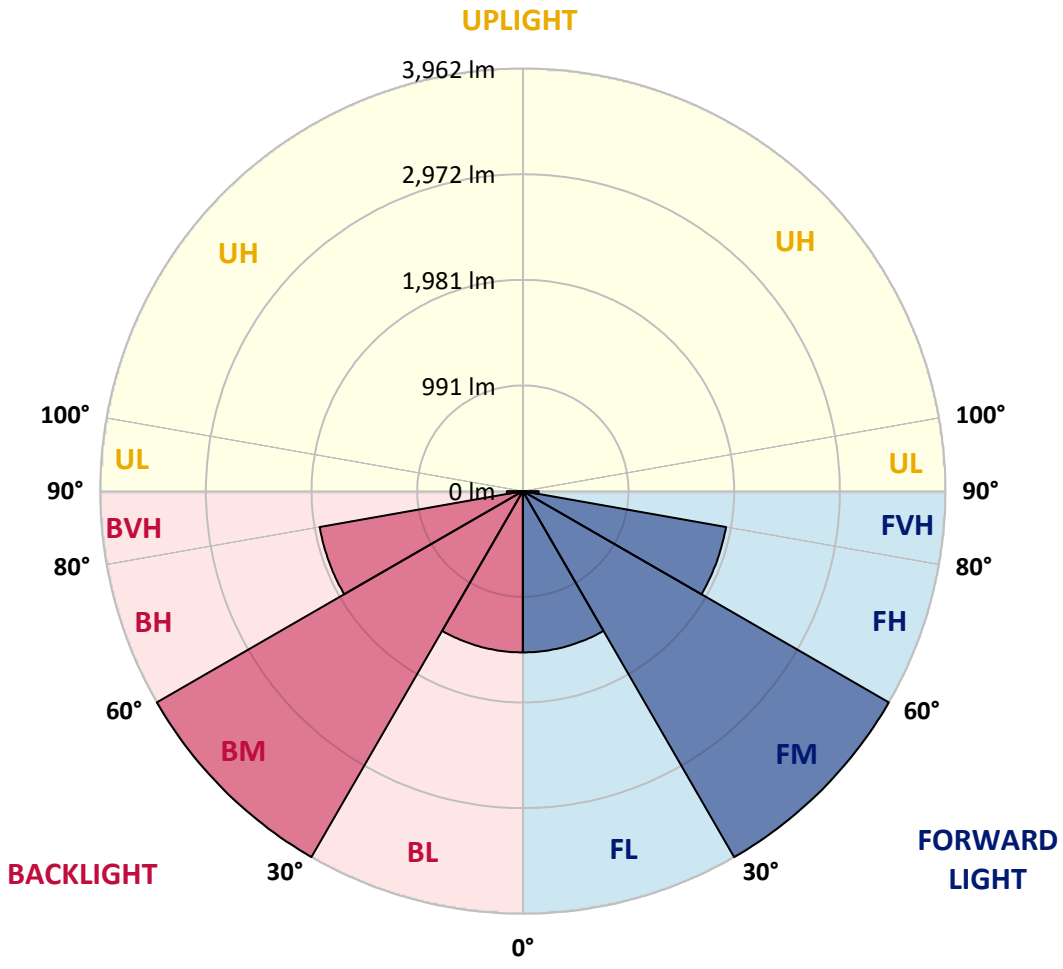
REPORT NUMBER: P879730
CATALOG NUMBER: EMM2-HTN-VA9-735-U-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	1511.8	10.0			
FM	(30°-60°)	3962.1	26.2			
FH	(60°-80°)	1934.2	12.8			G2/5000
FVH	(80°-90°)	148.9	1.0			G2/225
BL	(0°-30°)	1511.8	10.0	B3/2500		
BM	(30°-60°)	3962.1	26.2	B3/5000		
BH	(60°-80°)	1934.2	12.8	B3/2500		G2/5000
BVH	(80°-90°)	148.9	1.0			G2/225
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G2
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	3772.6	3772.6	3772.6	3772.6	3772.6	3772.6	3772.6	3772.6	3772.6	3772.6	3772.6
2.5°	3761.4	3765.2	3764.2	3764.2	3764.2	3766.1	3766.1	3766.1	3767.0	3767.0	3768.0
5°	3739.9	3742.7	3742.7	3742.7	3744.5	3745.5	3745.5	3746.4	3748.3	3747.3	3746.4
7.5°	3710.8	3713.6	3713.6	3713.6	3715.5	3717.4	3717.4	3716.4	3719.2	3719.2	3718.3
10°	3679.9	3680.8	3681.8	3683.6	3686.4	3687.4	3686.4	3686.4	3685.5	3686.4	3686.4
12.5°	3643.3	3648.0	3649.0	3650.8	3655.5	3656.5	3656.5	3655.5	3654.6	3654.6	3653.6
15°	3610.5	3612.4	3615.2	3619.0	3624.6	3626.5	3627.4	3624.6	3621.8	3620.8	3621.8
17.5°	3580.5	3583.4	3587.1	3590.9	3598.4	3602.1	3602.1	3598.4	3594.6	3592.7	3592.7
20°	3556.2	3559.0	3563.7	3569.3	3579.6	3584.3	3582.4	3578.7	3572.1	3569.3	3570.2
22.5°	3540.3	3544.0	3547.8	3556.2	3567.4	3573.1	3571.2	3564.6	3557.1	3552.4	3552.4
25°	3527.1	3529.9	3535.6	3546.8	3559.0	3565.6	3562.7	3554.3	3544.0	3538.4	3537.4
27.5°	3512.1	3515.9	3523.4	3538.4	3553.4	3559.0	3557.1	3544.9	3532.8	3525.3	3523.4
30°	3498.1	3501.8	3512.1	3529.0	3547.8	3556.2	3551.5	3538.4	3523.4	3514.0	3513.1
32.5°	3488.7	3493.4	3505.6	3527.1	3549.6	3561.8	3557.1	3541.2	3521.5	3509.3	3508.4
35°	3485.0	3489.7	3507.5	3533.7	3561.8	3578.7	3572.1	3552.4	3528.1	3513.1	3511.2
37.5°	3485.9	3491.5	3514.0	3548.7	3584.3	3602.1	3593.7	3568.4	3537.4	3516.8	3514.0
40°	3489.7	3496.2	3525.3	3568.4	3610.5	3627.4	3614.3	3576.8	3534.6	3505.6	3500.0
42.5°	3494.3	3504.6	3540.3	3590.9	3634.9	3649.0	3625.5	3570.2	3511.2	3473.7	3469.0
45°	3493.4	3501.8	3543.1	3603.0	3649.9	3657.4	3619.0	3549.6	3480.3	3431.6	3427.8
47.5°	3477.5	3485.9	3532.8	3599.3	3645.2	3647.1	3601.2	3521.5	3440.0	3383.8	3378.1
50°	3427.8	3439.1	3491.5	3564.6	3616.2	3617.1	3566.5	3478.4	3383.8	3318.2	3308.8
52.5°	3351.9	3360.3	3421.2	3500.0	3558.1	3565.6	3510.3	3408.1	3300.4	3230.1	3223.5
55°	3233.8	3250.7	3315.4	3397.8	3461.5	3470.0	3414.7	3304.1	3193.5	3113.0	3105.5
57.5°	3097.0	3099.8	3168.2	3258.2	3324.7	3334.1	3274.1	3161.7	3046.4	2971.5	2952.7
60°	2904.0	2915.2	2979.9	3068.0	3138.3	3150.4	3093.3	2984.6	2864.6	2779.4	2778.4
62.5°	2681.0	2694.1	2759.7	2853.4	2924.6	2936.8	2875.9	2770.0	2650.0	2576.9	2550.7
65°	2439.2	2442.9	2508.5	2601.3	2666.0	2672.5	2624.7	2524.5	2400.8	2325.8	2308.9
67.5°	2167.4	2171.2	2221.8	2308.9	2378.3	2387.7	2338.9	2247.1	2135.6	2056.9	2048.4
70°	1866.6	1867.6	1917.2	1988.5	2057.8	2077.5	2033.4	1945.4	1838.5	1775.8	1758.9
72.5°	1549.9	1558.3	1602.4	1676.4	1735.5	1740.1	1704.5	1628.6	1541.5	1489.9	1480.6
75°	1260.4	1254.7	1292.2	1337.2	1383.1	1398.1	1369.1	1317.5	1236.9	1192.0	1201.3
77.5°	946.4	948.3	977.4	1018.6	1047.6	1073.9	1041.1	1016.7	952.1	900.5	902.4
80°	669.1	667.2	694.4	714.0	746.8	750.6	732.8	700.0	658.8	637.2	635.3
82.5°	423.6	415.1	435.7	461.0	475.1	468.5	472.3	450.7	417.9	406.7	396.4
85°	216.5	214.6	225.8	235.2	245.5	245.5	239.9	223.0	216.5	203.3	199.6
87.5°	74.0	76.8	80.6	77.8	82.5	80.6	78.7	66.5	59.0	55.3	51.5
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

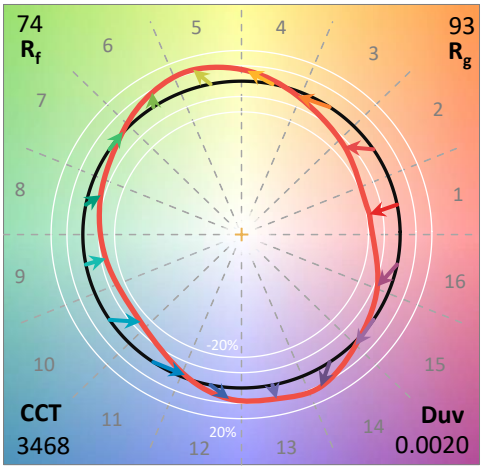
Test Information

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

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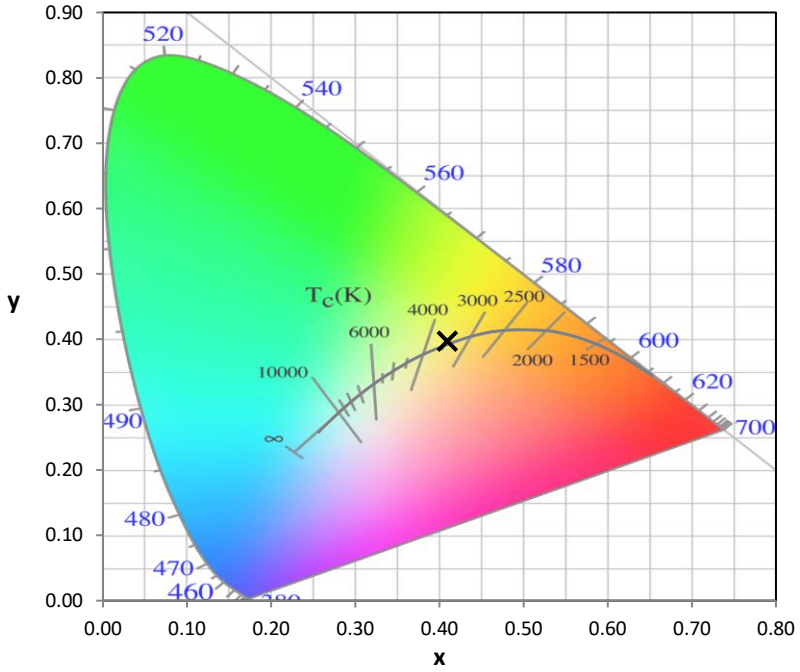
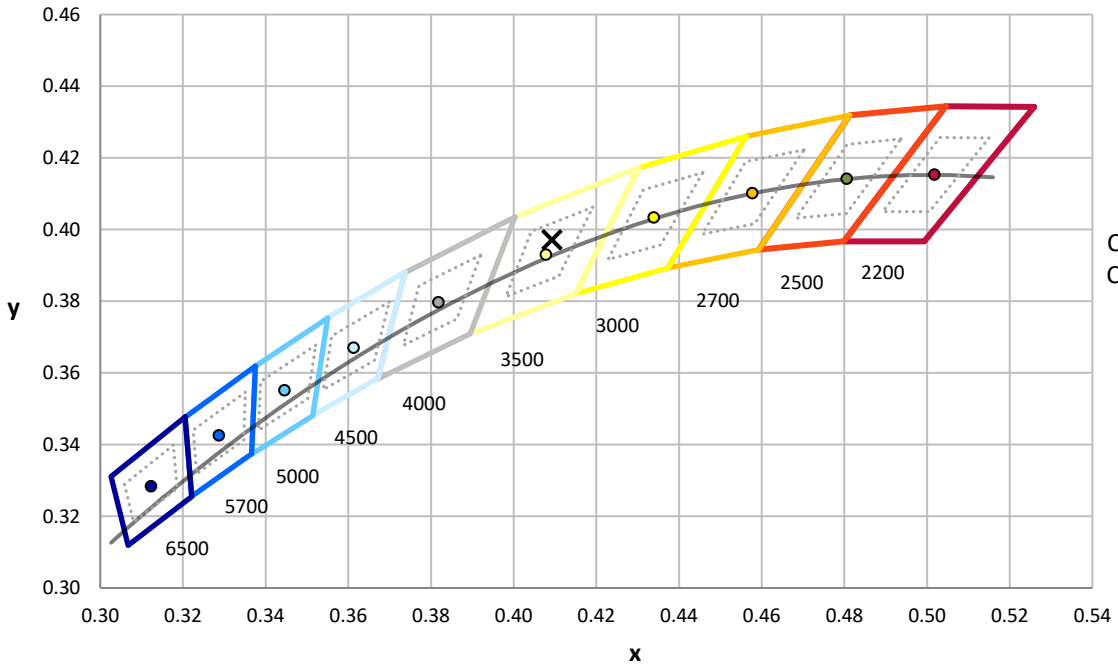
CIE 1931 Chromaticity Diagram



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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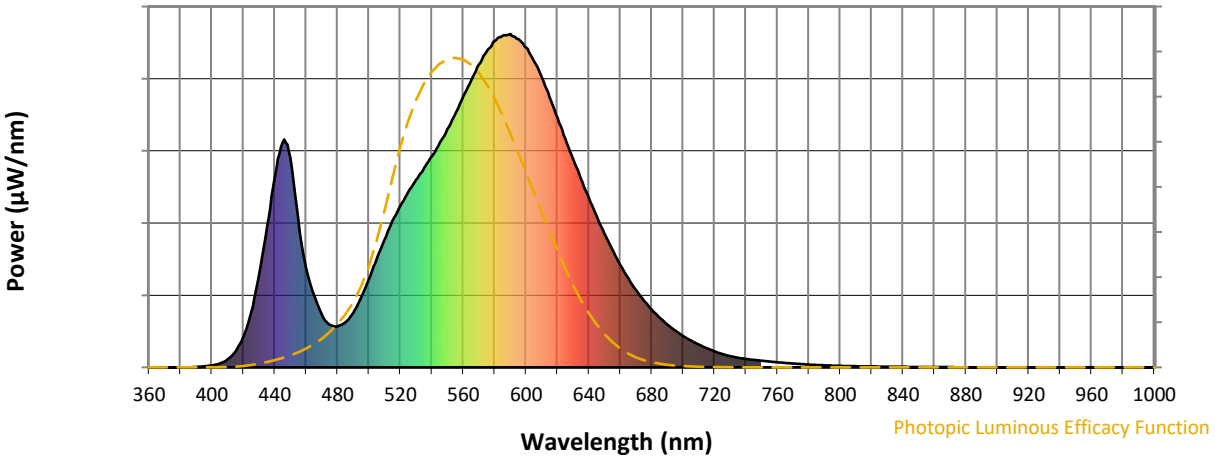
Photopic Flux vs. Wavelength

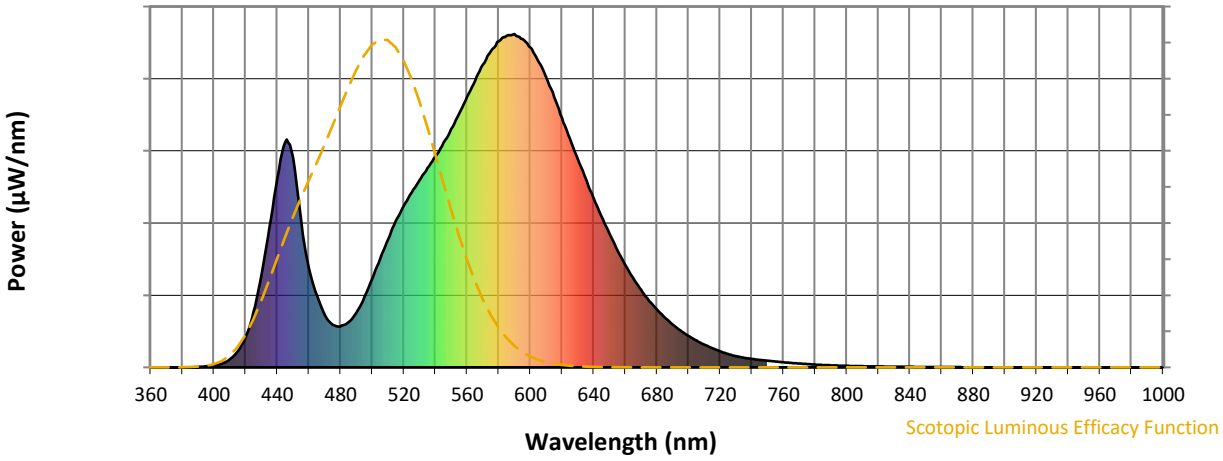


Photopic Lumens: NR

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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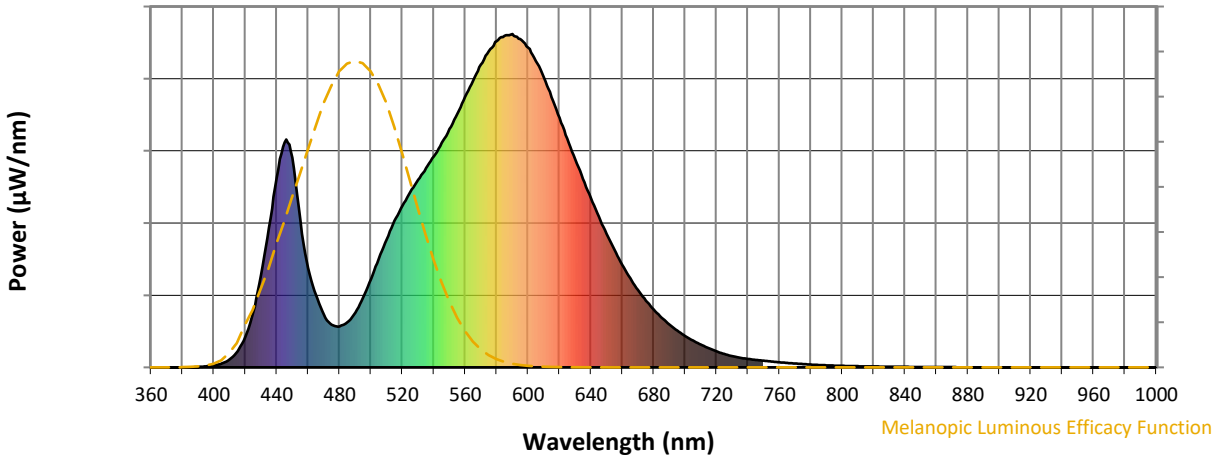
Melanopic Flux vs. Wavelength



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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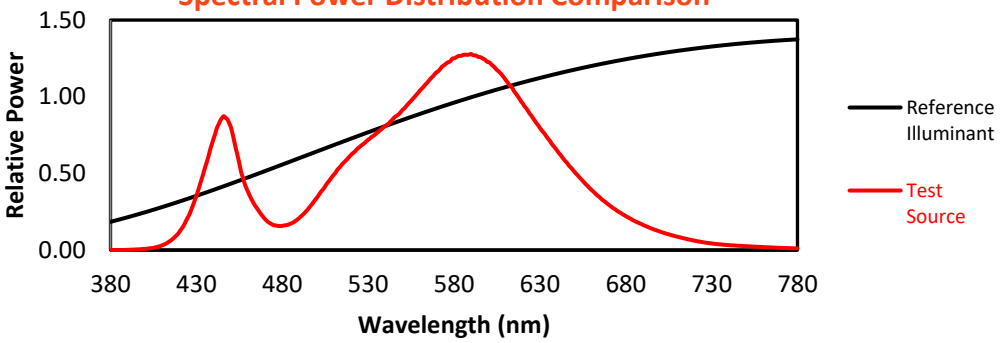
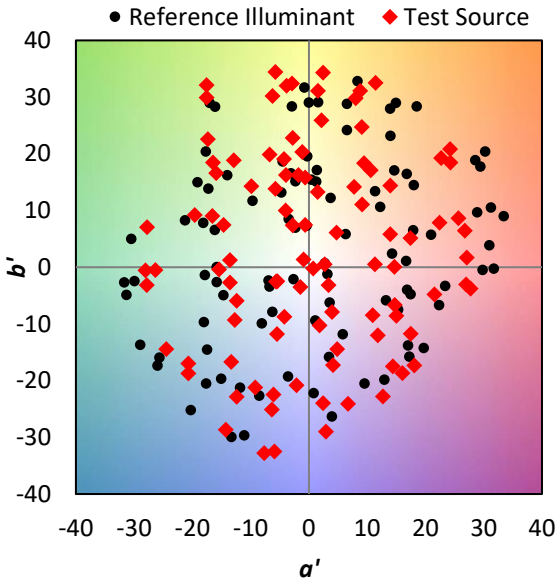
Summary

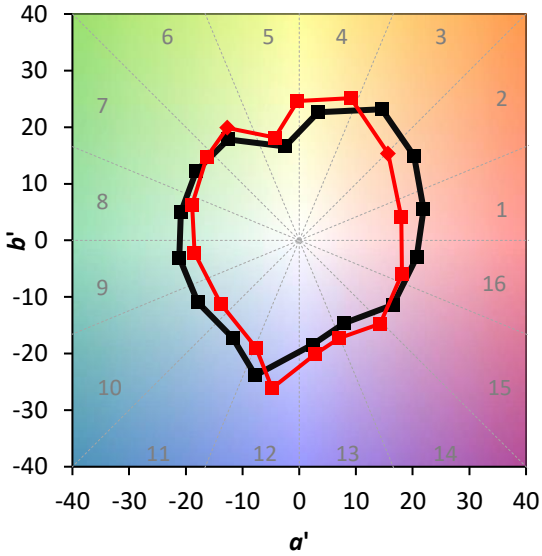
R_f = 74.1
R_g = 93.4
CIE R_a = 70.6
R_9 = -41.3

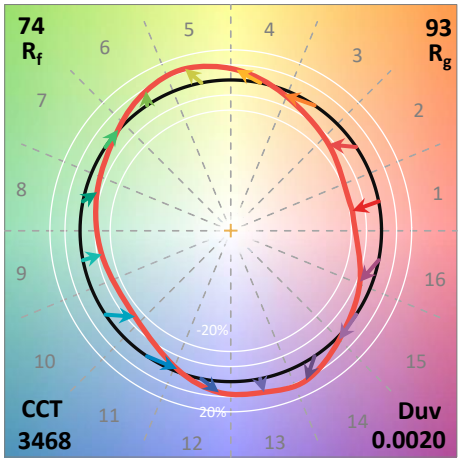
Spectral Power Distribution Comparison

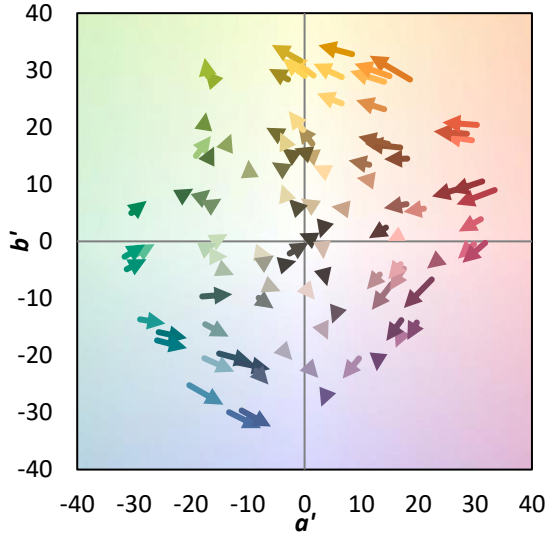


Color Vector Graphics









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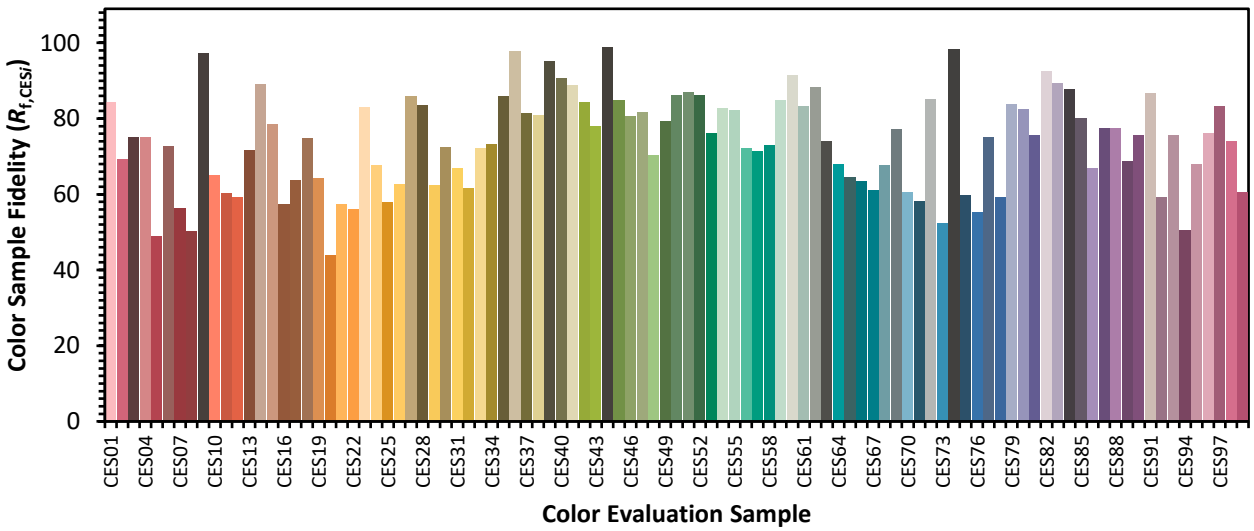
Individual Sample Fidelity Index ($R_{f,i}$)

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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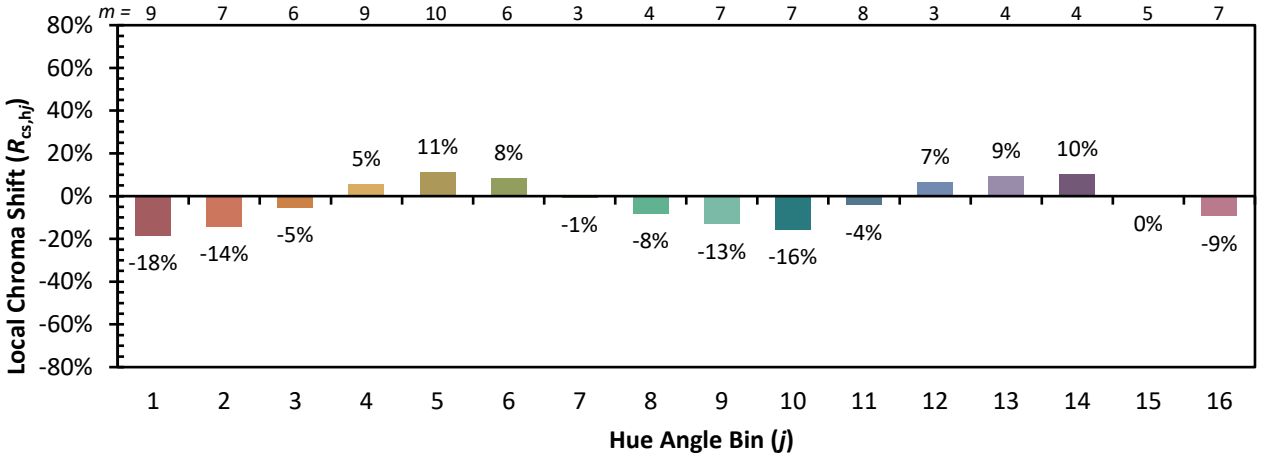
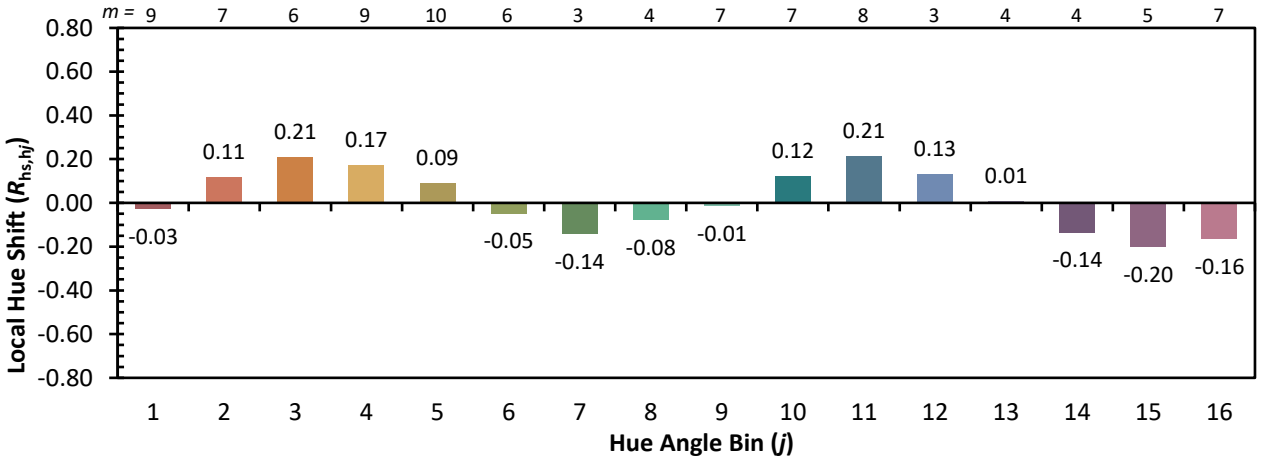
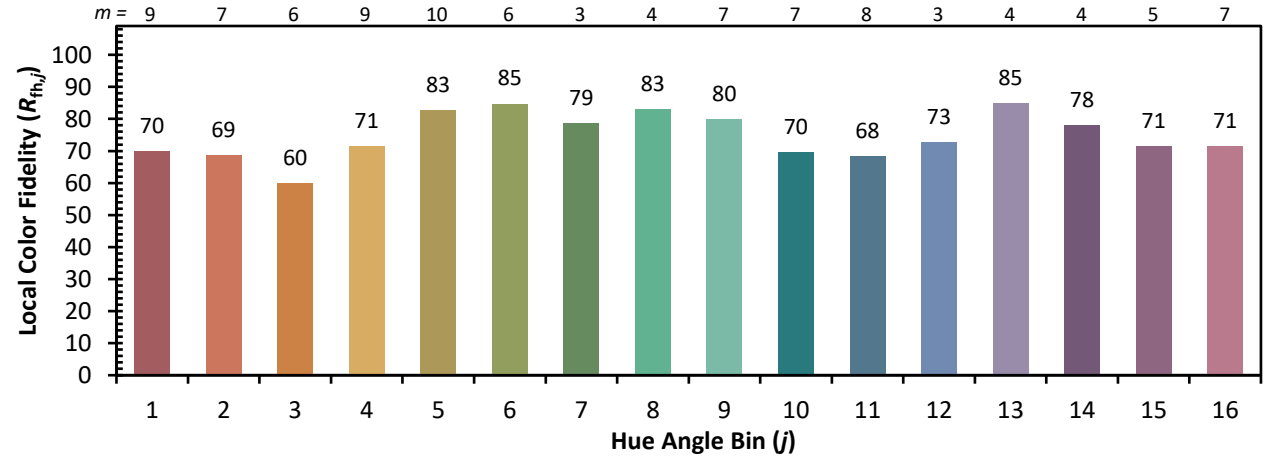
Color Rendition by Hue-Angle Bin







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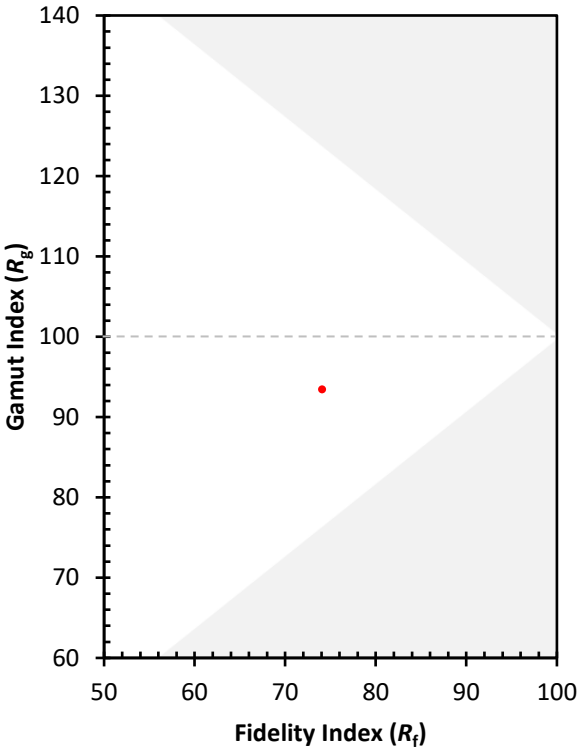
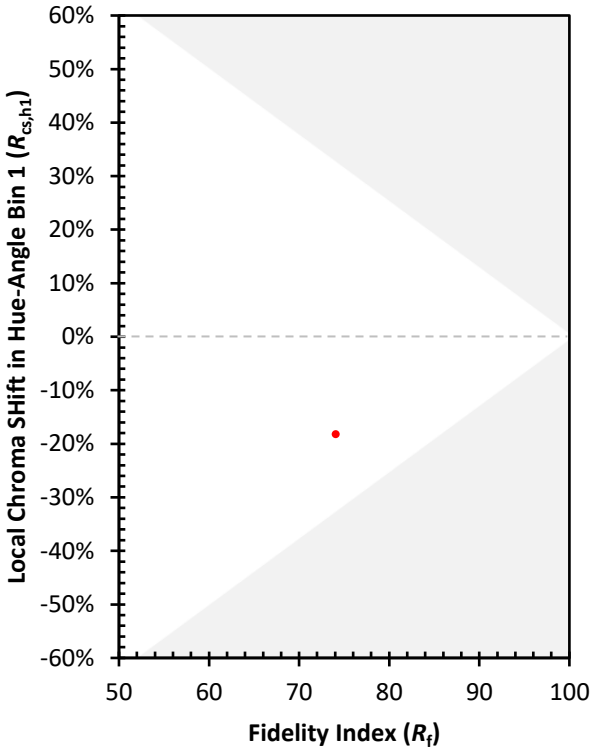
Measure Comparisons





(END OF REPORT)