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: P879698

Luminaire Tested: **EMM2-HTN-VA7-750-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:	P879698
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HTN-VA7-750-U-MQ
Description:	EPIC MODERN TALL HOUSING 7W 70CRI 5000K WAVESTREAM FIXTURE w/ TYPE V MEDIUM DISTRIBUTION OPTIC
Light Source:	(1) 5000K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	16042.6 lumens
Efficiency:	N/A
Efficacy:	123.4 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G3

Input Watts (W):	130
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.995
Total Harmonic Distortion (THDi):	8.1%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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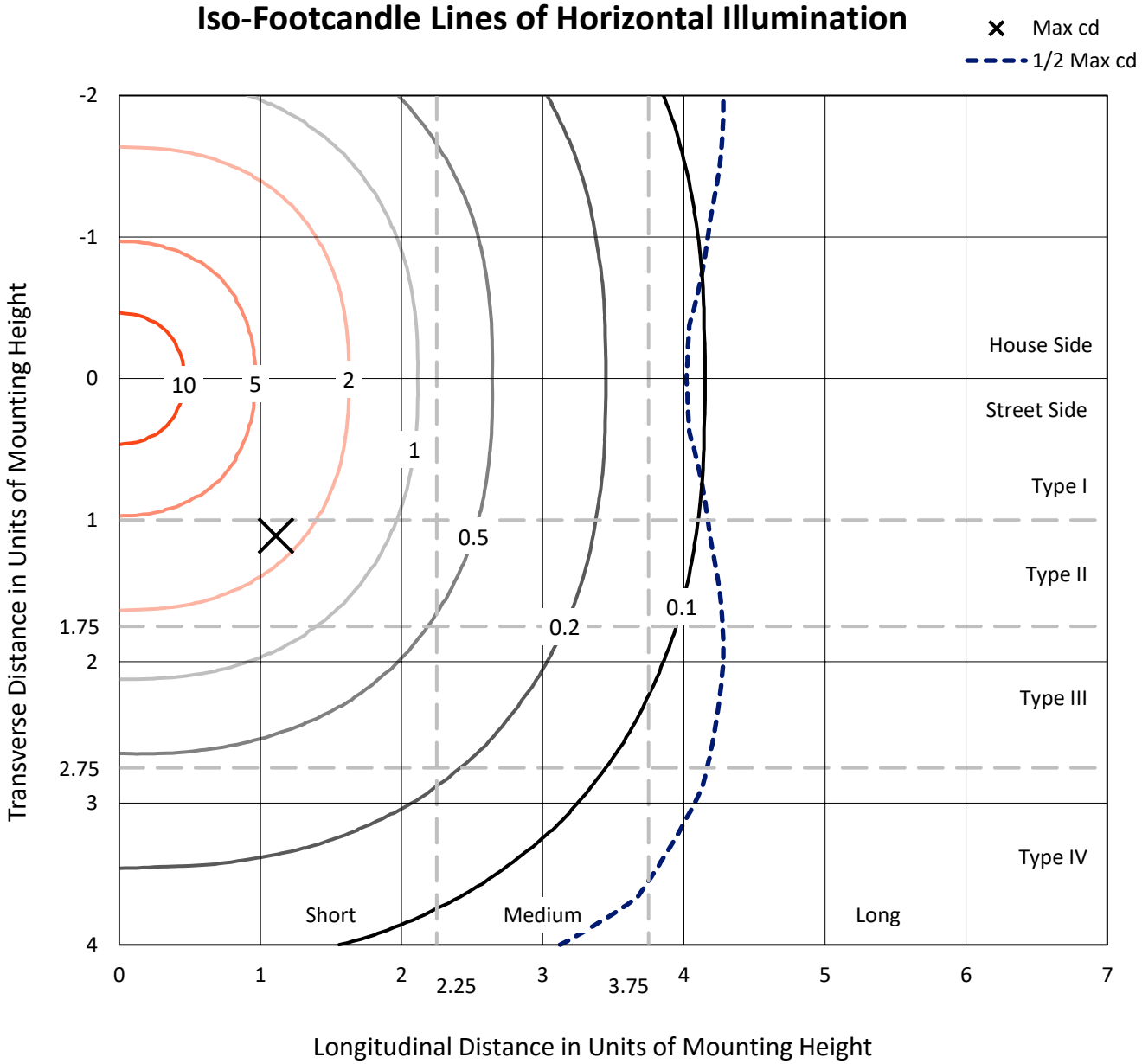
Scaled Data Report

REPORT NUMBER: P879698
CATALOG NUMBER: EMM2-HTN-VA7-750-U-MQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 14.4 fc
Type V - Short - N/A

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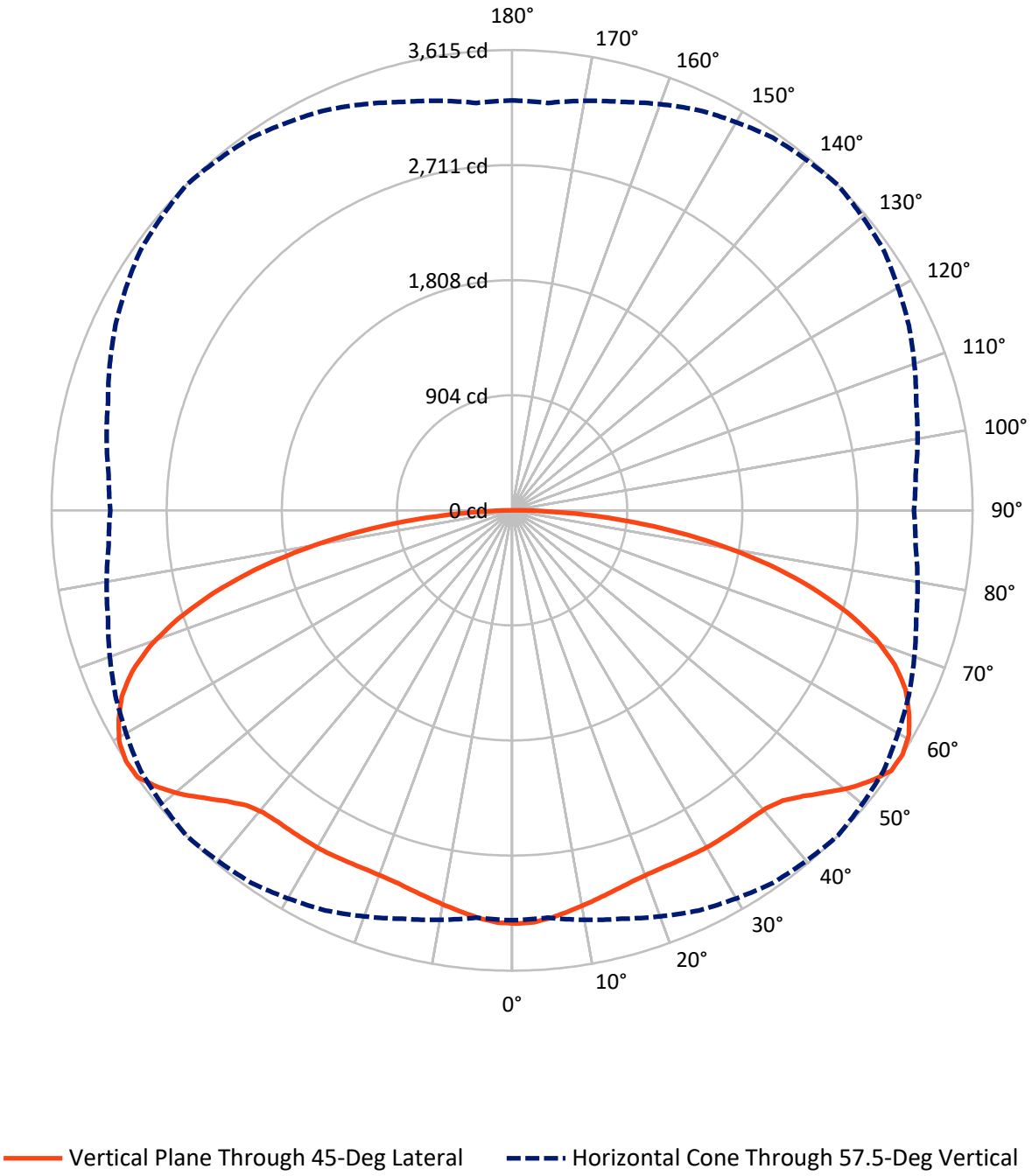
REPORT NUMBER: P879698
CATALOG NUMBER: EMM2-HTN-VA7-750-U-MQ

Luminous Intensity Polar Plot



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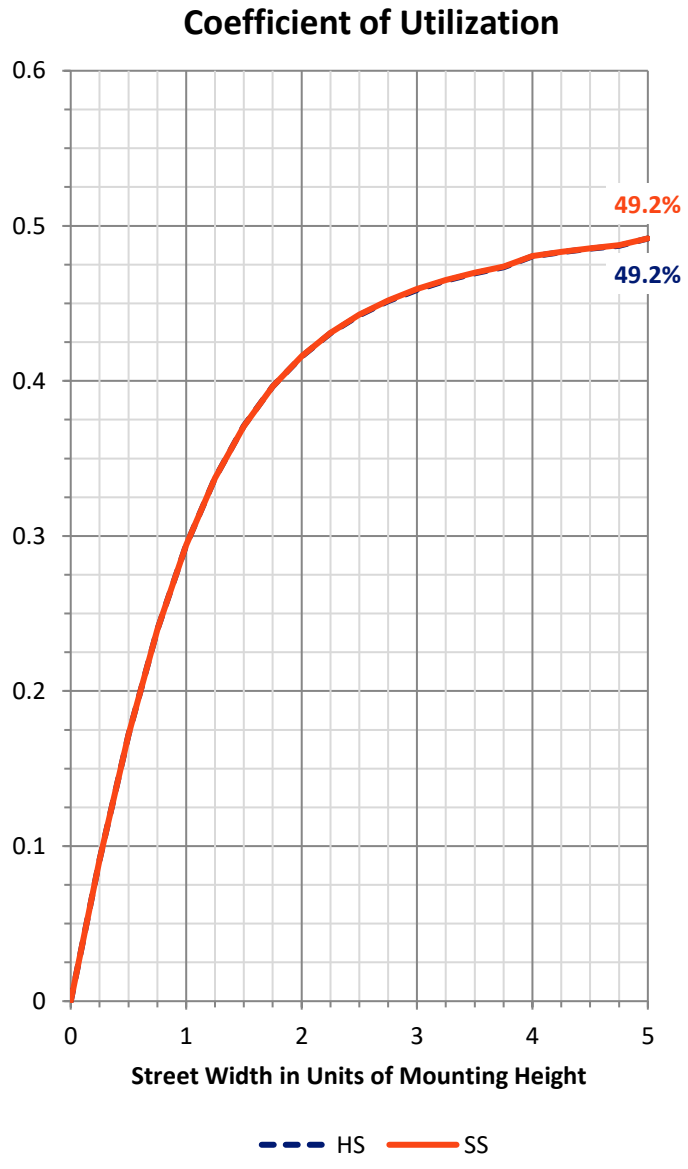
REPORT NUMBER: P879698
CATALOG NUMBER: EMM2-HTN-VA7-750-U-MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	8021.3	0.0	8021.3
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	8021.3	0.0	8021.3
	% Fixture	50.0	0.0	50.0
Total	Lumens	16042.6	0.0	16042.6
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	304.7	1.9
10°-20°	873.3	5.4
20°-30°	1403.4	8.7
30°-40°	1902.3	11.9
40°-50°	2429.5	15.1
50°-60°	3028.3	18.9
60°-70°	3085.7	19.2
70°-80°	2286.4	14.3
80°-90°	729.1	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°	16042.6	100.0
0°-180°	16042.6	100.0



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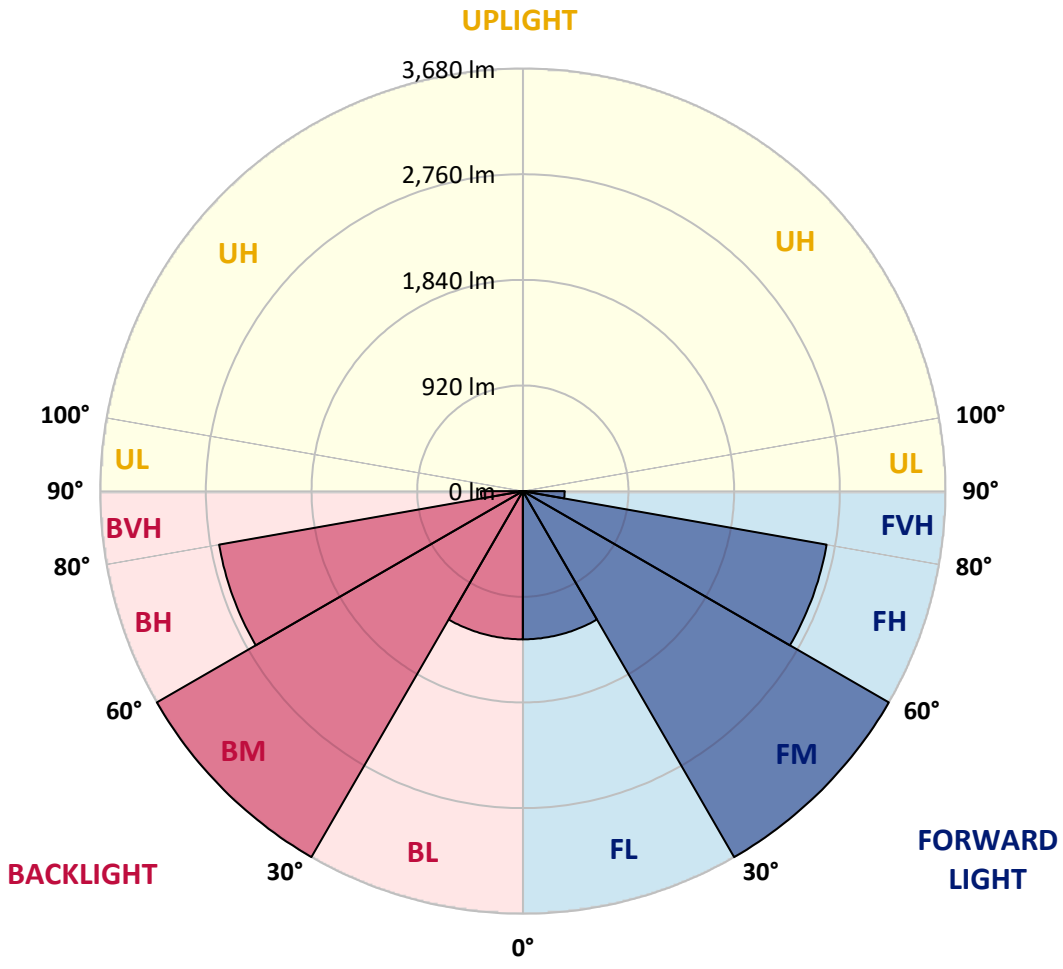
Scaled Data Report

REPORT NUMBER: P879698
CATALOG NUMBER: EMM2-HTN-VA7-750-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	1290.7	8.0			
FM	(30°-60°)	3680.0	22.9			
FH	(60°-80°)	2686.0	16.7			G2/5000
FVH	(80°-90°)	364.5	2.3			G3/500
BL	(0°-30°)	1290.7	8.0	B3/2500		
BM	(30°-60°)	3680.0	22.9	B3/5000		
BH	(60°-80°)	2686.0	16.7	B4/5000		G2/5000
BVH	(80°-90°)	364.5	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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REPORT NUMBER: P879698
CATALOG NUMBER: EMM2-HTN-VA7-750-U-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	3245.3	3245.3	3245.3	3245.3	3245.3	3245.3	3245.3	3245.3	3245.3	3245.3	3245.3
2.5°	3239.7	3239.7	3238.9	3238.9	3238.1	3238.9	3239.7	3239.7	3238.9	3238.1	3237.3
5°	3216.6	3217.4	3217.4	3215.8	3214.2	3214.2	3214.2	3215.0	3213.4	3214.2	3213.4
7.5°	3183.0	3180.6	3183.0	3182.2	3183.0	3180.6	3184.6	3183.0	3180.6	3182.2	3182.2
10°	3145.5	3146.3	3147.1	3146.3	3148.7	3147.9	3147.1	3146.3	3144.7	3146.3	3143.9
12.5°	3110.4	3111.2	3113.6	3114.4	3116.8	3116.0	3116.8	3115.2	3114.4	3111.2	3110.4
15°	3076.8	3078.4	3081.6	3084.0	3086.4	3087.2	3085.6	3084.8	3080.8	3078.4	3076.8
17.5°	3048.9	3048.9	3053.7	3057.7	3061.7	3062.5	3061.7	3057.7	3052.1	3046.5	3047.3
20°	3029.7	3029.7	3035.3	3041.7	3047.3	3048.9	3046.5	3039.3	3030.5	3026.5	3025.7
22.5°	3020.9	3021.7	3027.3	3034.5	3042.5	3044.1	3039.3	3030.5	3020.9	3013.7	3012.9
25°	3021.7	3020.1	3024.9	3036.1	3044.9	3046.5	3042.5	3030.5	3019.3	3012.9	3010.5
27.5°	3019.3	3020.1	3025.7	3036.9	3048.1	3051.3	3044.9	3030.5	3015.3	3009.7	3008.1
30°	3018.5	3019.3	3020.9	3039.3	3052.1	3057.7	3048.1	3028.9	3016.1	3007.4	3006.6
32.5°	3015.3	3011.3	3022.5	3033.7	3049.7	3056.9	3047.3	3029.7	3008.9	3002.6	2999.4
35°	3002.6	3006.6	3016.1	3035.3	3053.7	3058.5	3047.3	3025.7	3007.4	2994.6	2993.8
37.5°	3000.2	3000.2	3015.3	3035.3	3053.7	3060.9	3051.3	3027.3	3001.8	2985.8	2985.8
40°	2997.0	2996.2	3016.1	3040.9	3064.8	3074.4	3061.7	3032.1	3001.0	2985.8	2977.8
42.5°	3005.8	3010.5	3033.7	3069.6	3100.0	3116.0	3097.6	3064.8	3028.1	2999.4	2998.6
45°	3047.3	3057.7	3081.6	3142.3	3183.0	3202.2	3180.6	3123.9	3066.4	3028.1	3025.7
47.5°	3112.0	3108.8	3165.5	3229.3	3289.2	3310.0	3278.9	3212.6	3129.5	3083.2	3071.2
50°	3156.7	3164.7	3223.0	3315.6	3405.0	3429.0	3383.5	3298.0	3207.8	3143.9	3132.7
52.5°	3217.4	3219.0	3293.2	3410.6	3502.5	3528.8	3484.9	3378.7	3257.3	3177.4	3171.9
55°	3224.6	3250.9	3341.1	3468.9	3579.1	3610.3	3556.0	3442.6	3301.2	3202.2	3192.6
57.5°	3219.0	3211.0	3320.4	3467.3	3571.1	3615.0	3561.5	3436.2	3284.4	3179.8	3154.3
60°	3104.0	3137.5	3258.1	3401.8	3535.2	3579.1	3516.8	3389.1	3223.0	3108.0	3097.6
62.5°	3025.7	3040.1	3150.3	3343.5	3452.9	3496.9	3449.0	3298.8	3121.5	3001.8	2987.4
65°	2903.5	2914.7	3044.1	3203.0	3355.5	3394.6	3333.2	3207.0	3016.9	2885.2	2858.8
67.5°	2708.7	2739.0	2866.8	3068.8	3174.2	3241.3	3186.2	3008.9	2836.5	2707.1	2687.9
70°	2481.9	2522.6	2654.4	2819.7	2995.4	3028.9	2953.0	2832.5	2639.2	2501.1	2467.5
72.5°	2263.1	2266.3	2389.3	2583.3	2694.3	2756.6	2713.5	2554.6	2365.3	2247.9	2227.2
75°	1957.3	1958.1	2093.0	2251.9	2392.5	2433.2	2364.5	2252.7	2084.2	1952.5	1939.7
77.5°	1602.7	1624.3	1744.0	1897.4	2008.4	2067.5	2018.7	1892.6	1735.3	1622.7	1609.9
80°	1256.9	1284.1	1368.7	1506.1	1601.9	1653.8	1601.1	1490.9	1371.1	1260.9	1262.5
82.5°	887.2	907.2	987.0	1080.4	1173.9	1212.2	1189.8	1108.4	999.0	902.4	876.0
85°	495.1	520.7	574.2	656.4	718.7	768.2	740.3	676.4	581.3	520.7	519.1
87.5°	145.3	157.3	178.9	234.0	293.1	314.6	308.2	292.3	256.3	230.0	213.2
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

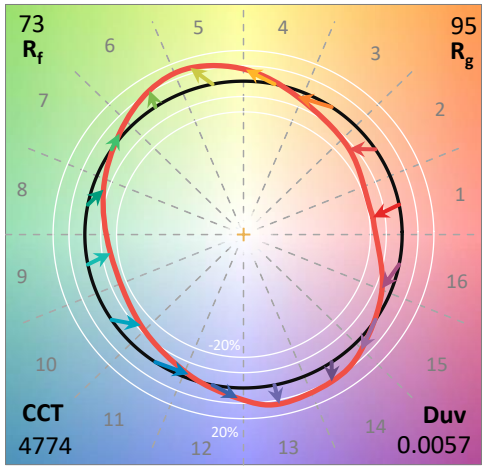
Test Information

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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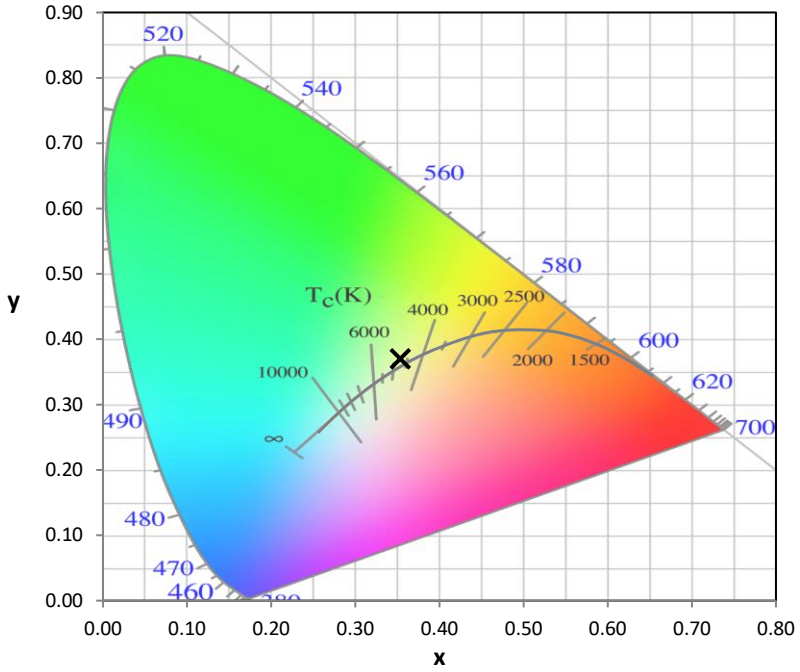
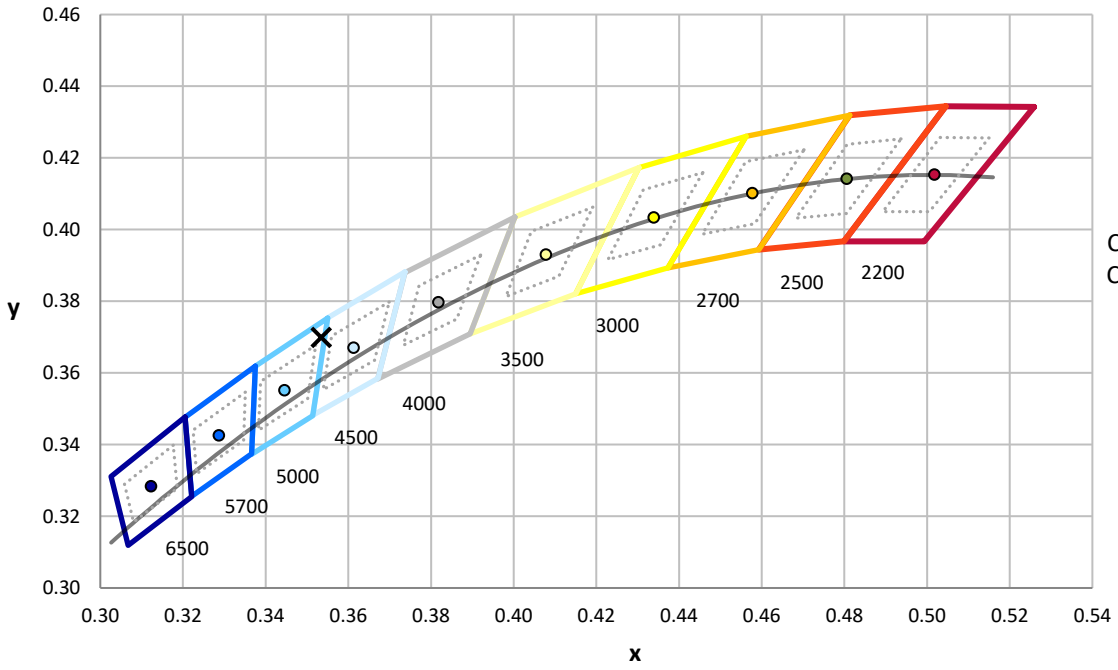
CIE 1931 Chromaticity Diagram



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

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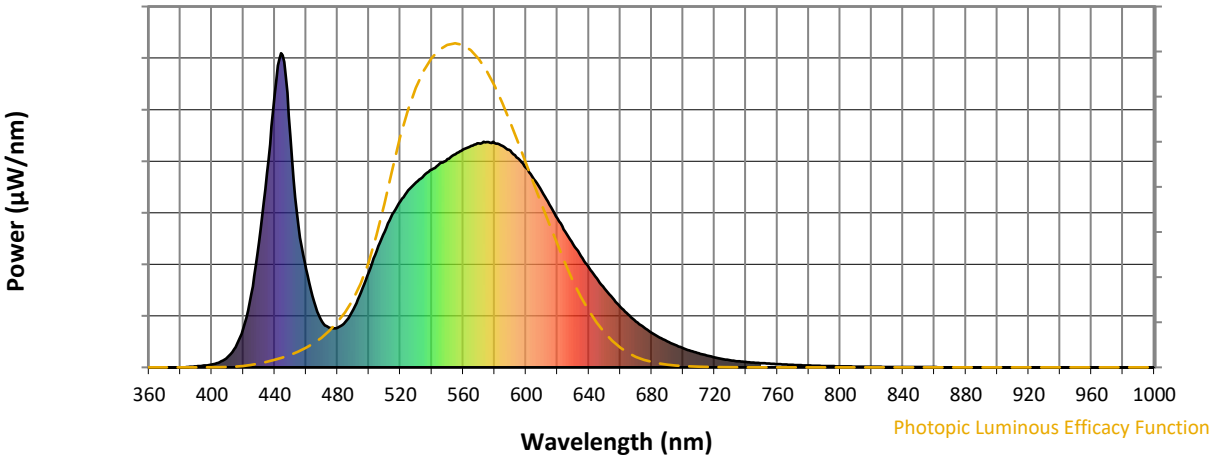
Photopic Flux vs. Wavelength

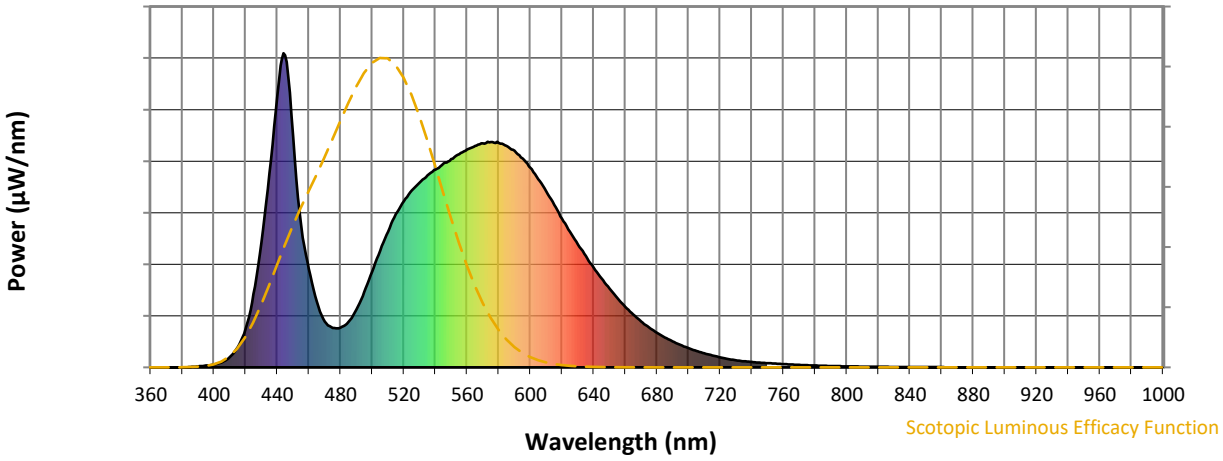


Photopic Lumens: NR

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	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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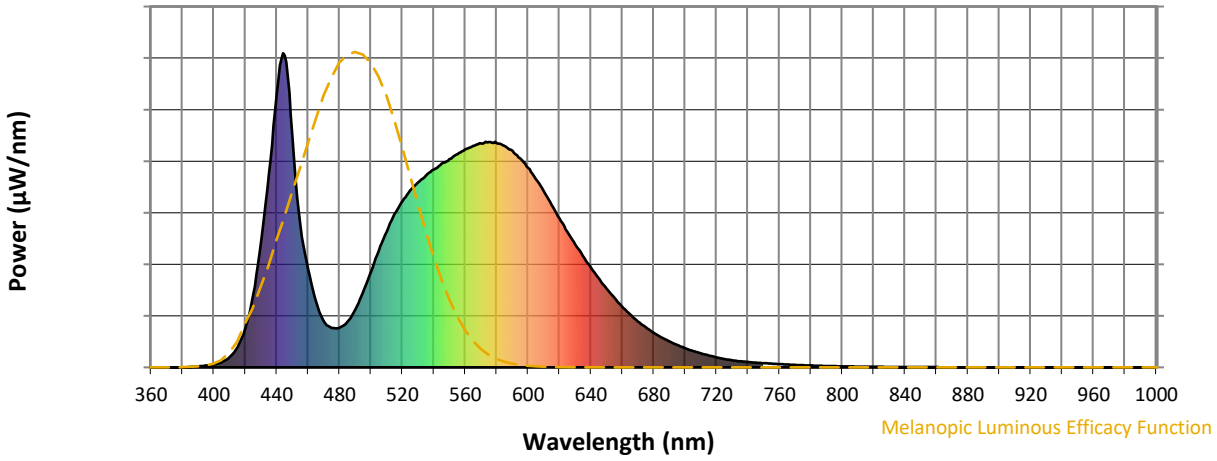
Melanopic Flux vs. Wavelength



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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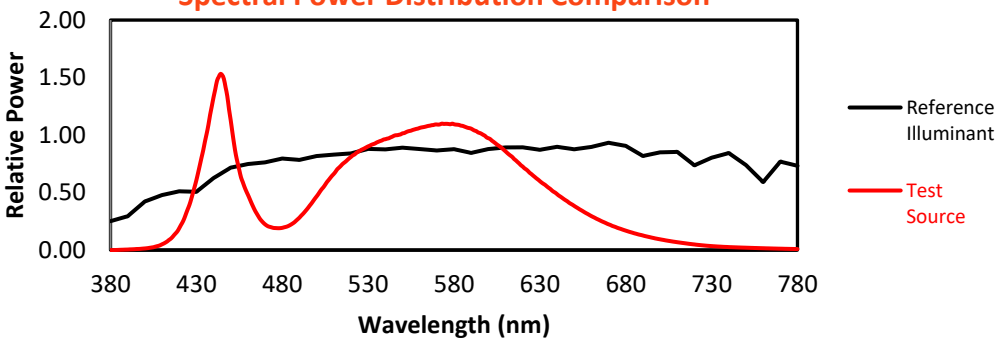
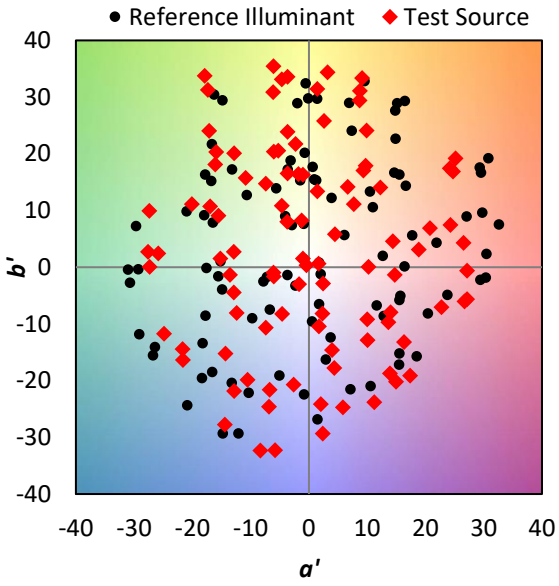
Summary

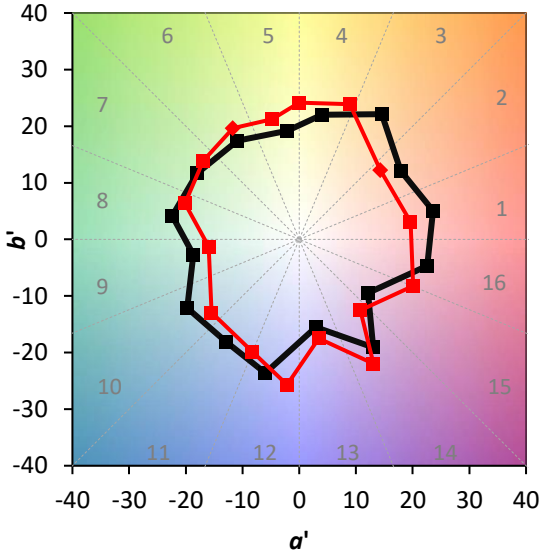
R_f = 73.1
R_g = 94.9
CIE R_a = 70.8
R_9 = -40.0

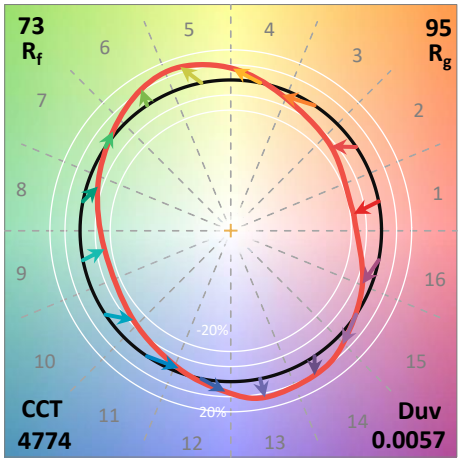
Spectral Power Distribution Comparison

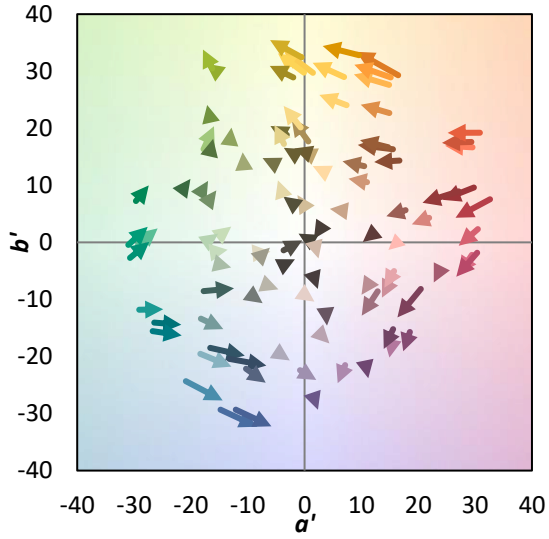


Color Vector Graphics









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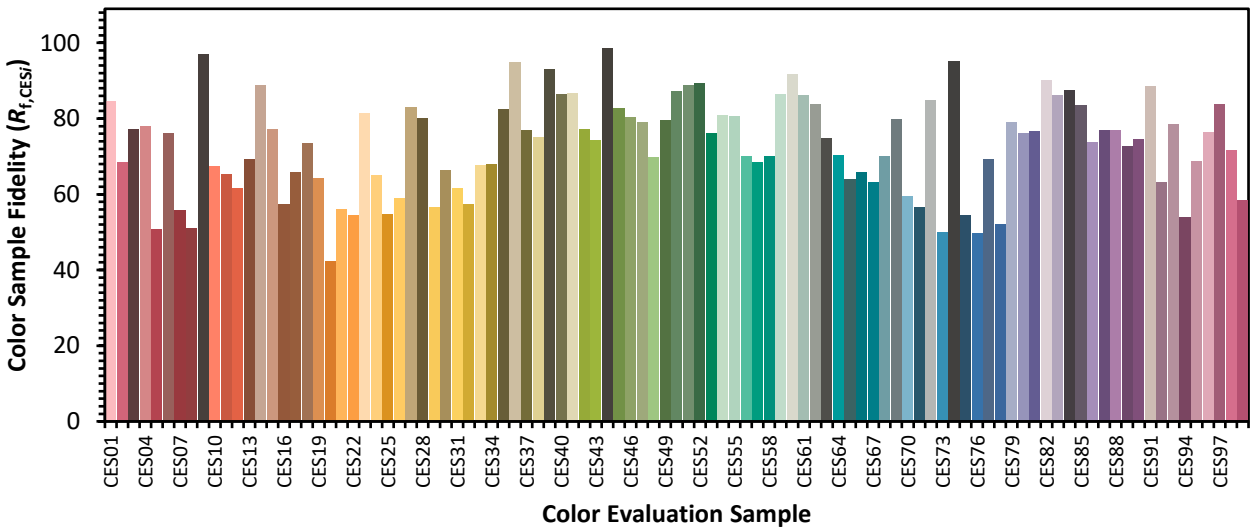
Individual Sample Fidelity Index ($R_{f,i}$)

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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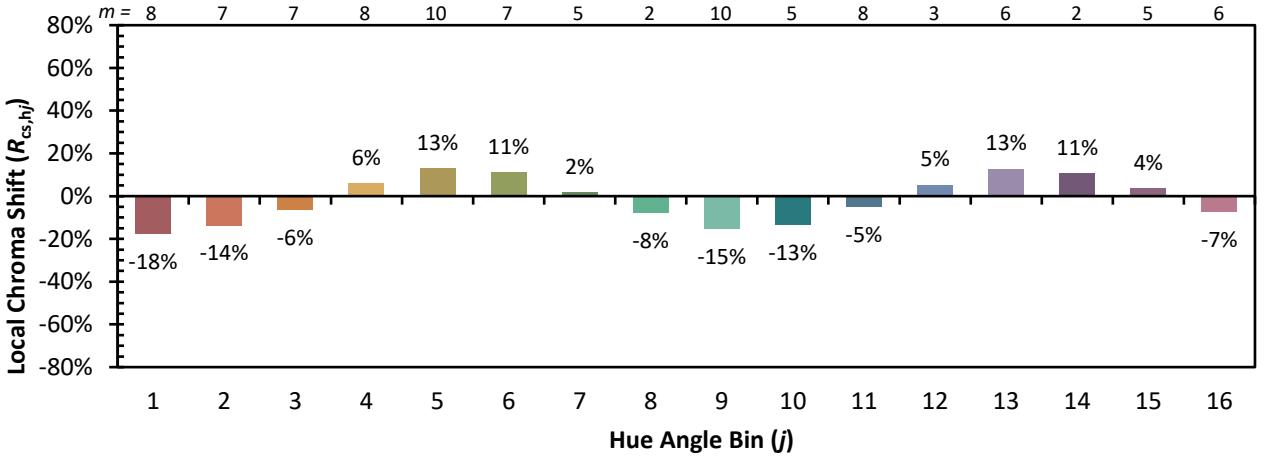
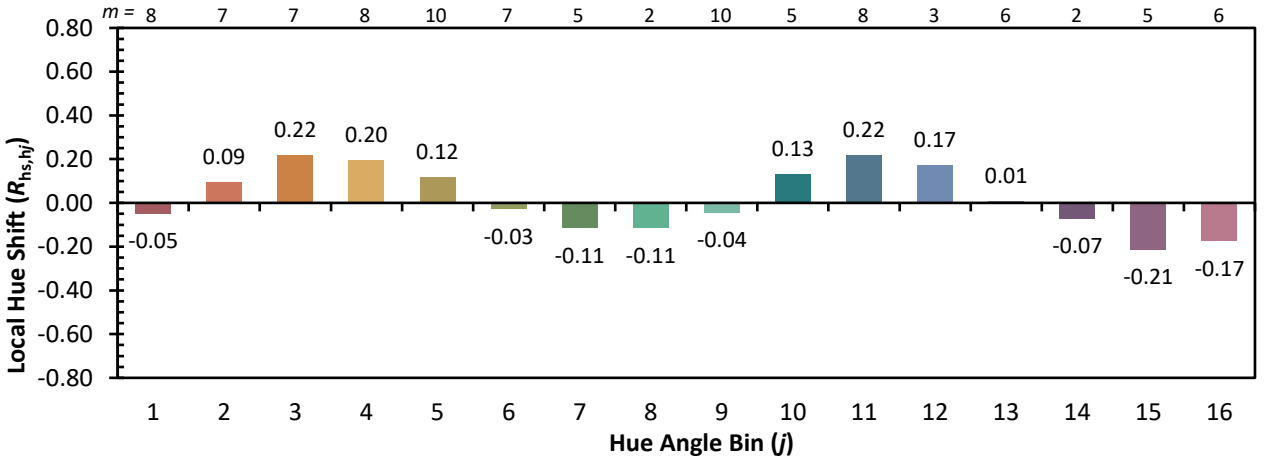
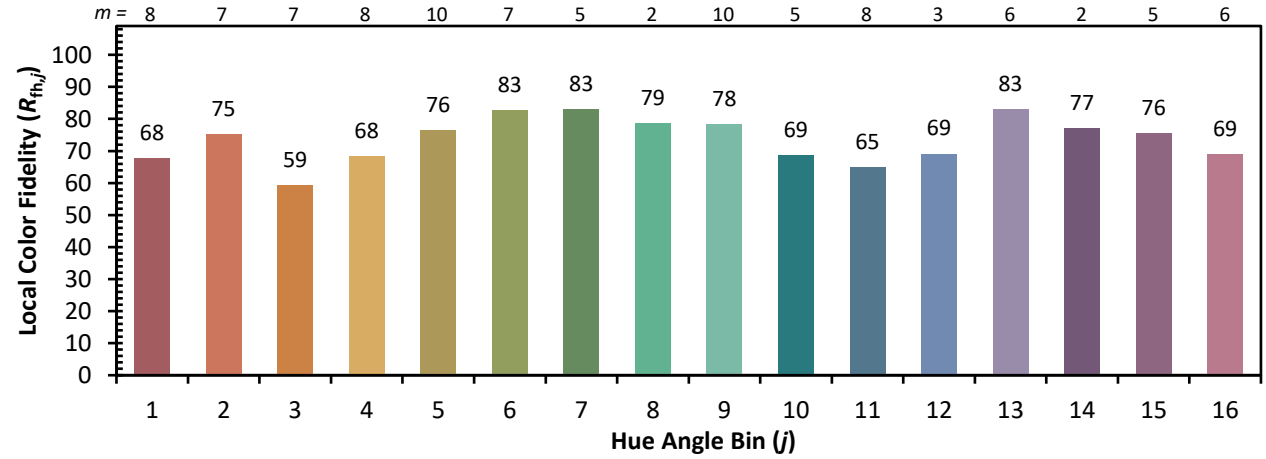
Color Rendition by Hue-Angle Bin







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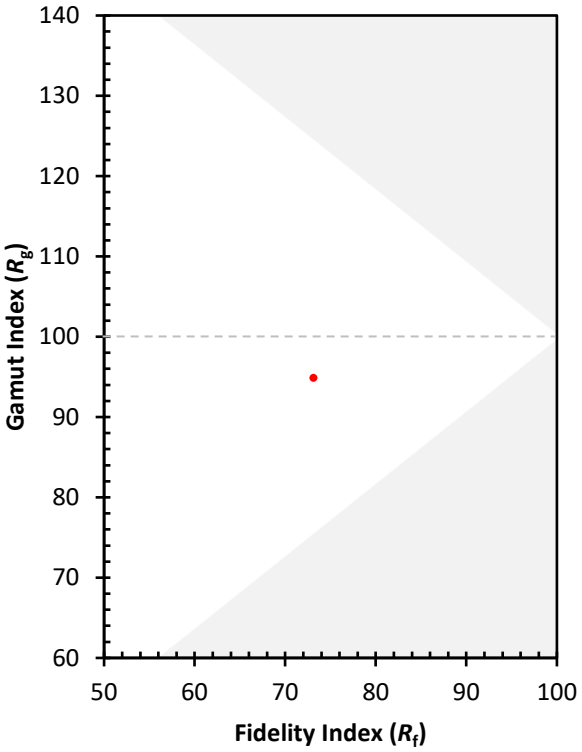
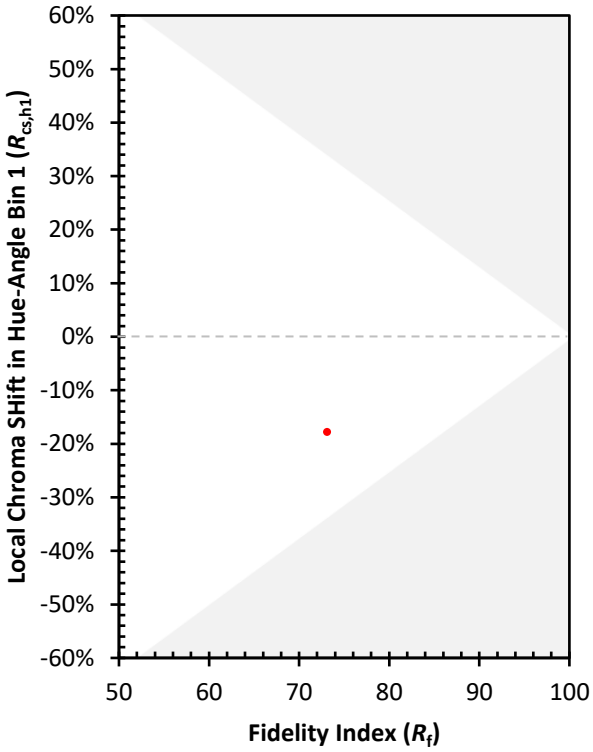
Measure Comparisons





(END OF REPORT)