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: STREETWORKS

Report Number: P879962

Luminaire Tested: **MEM2-HSN-VA-30-727-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:	P879962
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	MEM2-HSN-VA-30-727-U-WQ
Description:	EPIC MODERN SHORT HOUSING 30W 70CRI 2700K VISUAL COMFORT FIXTURE w/ TYPE V WIDE DISTRIBUTION OPTIC
Light Source:	(1) 2700K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	2829 lumens
Efficiency:	N/A
Efficacy:	101.0 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B2 - U0 - G1

Input Watts (W):	28
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	16%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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REPORT NUMBER: P879962
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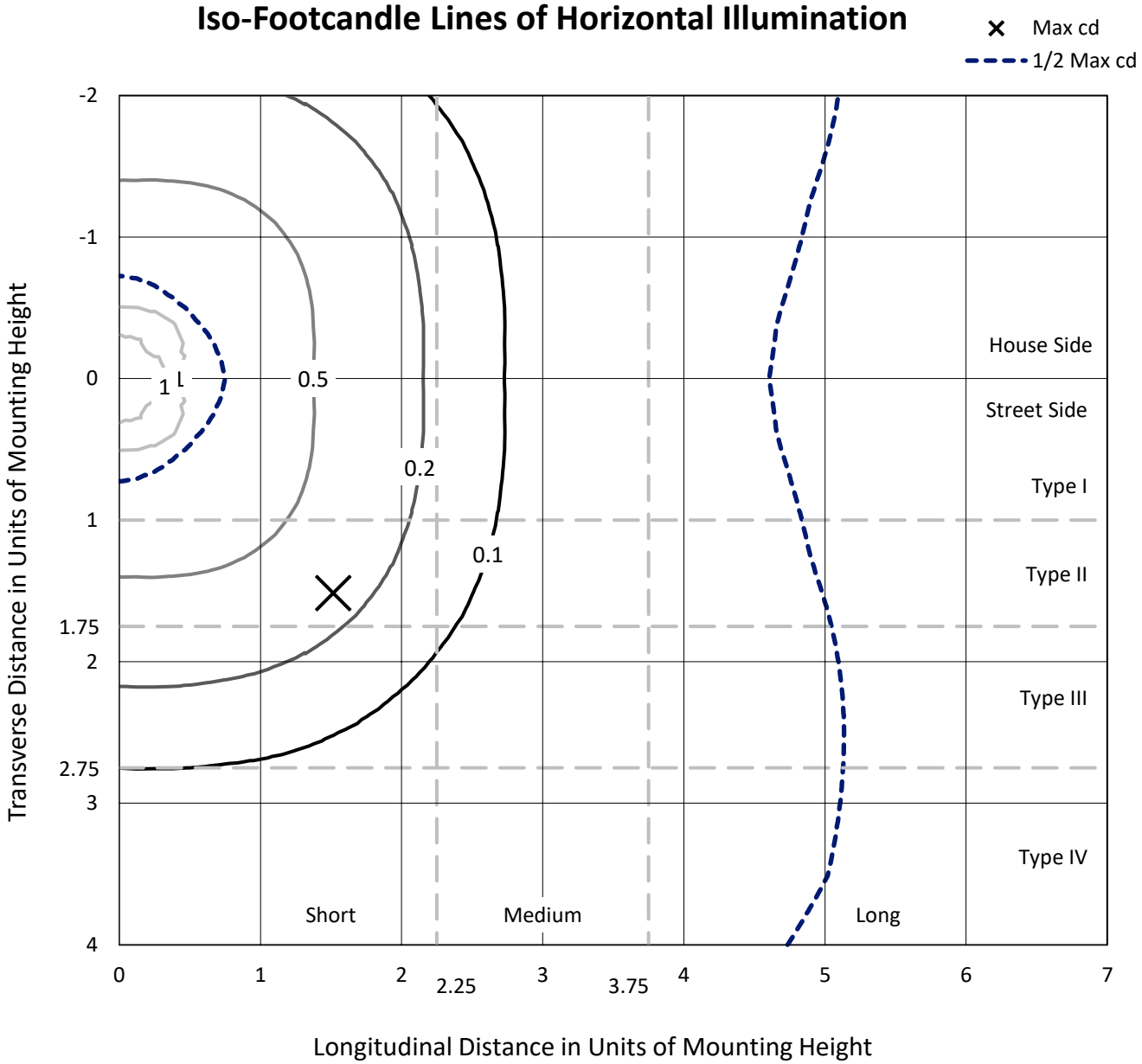
Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 1 fc
Type V - Short - N/A

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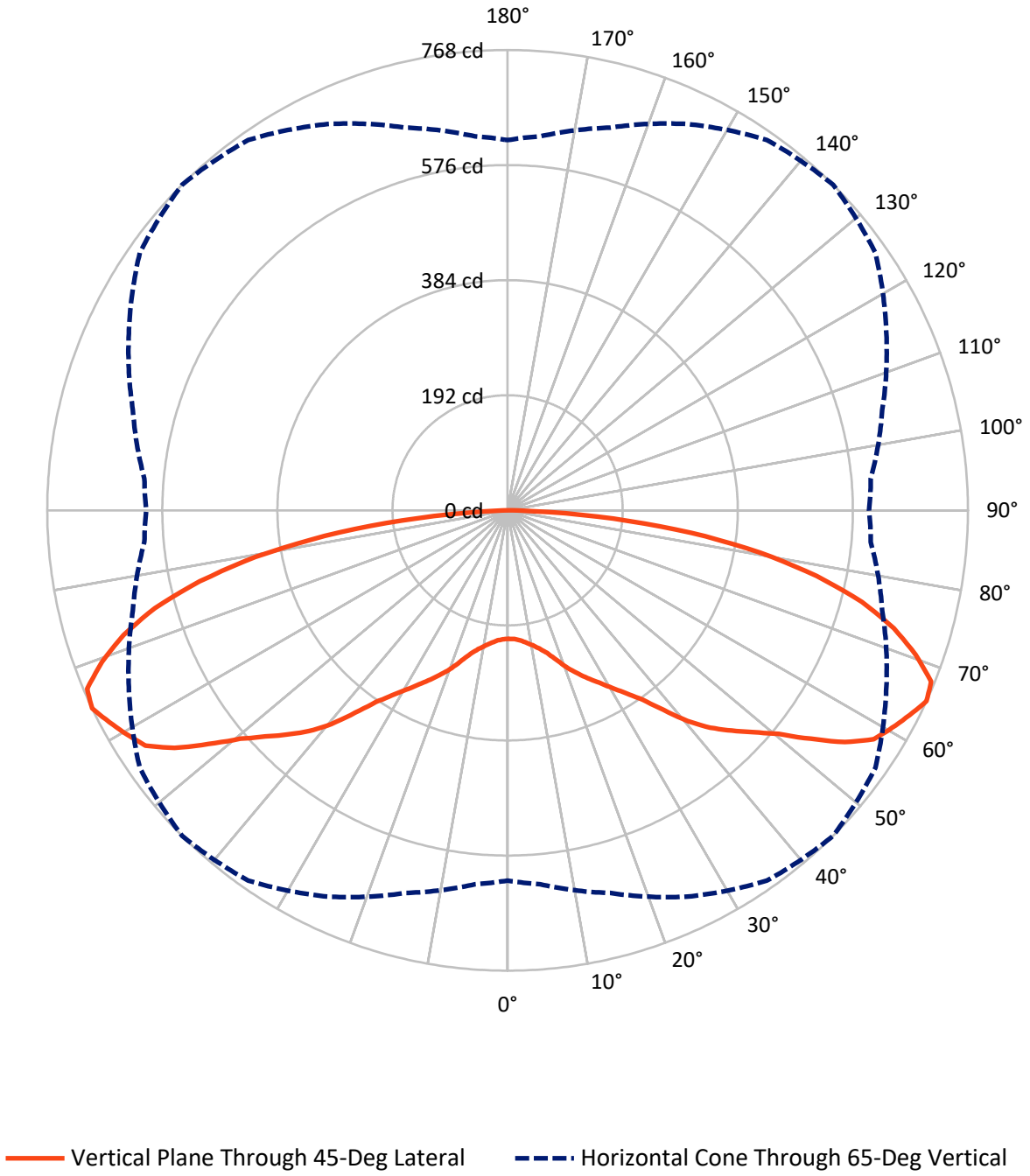
Luminous Intensity Polar Plot



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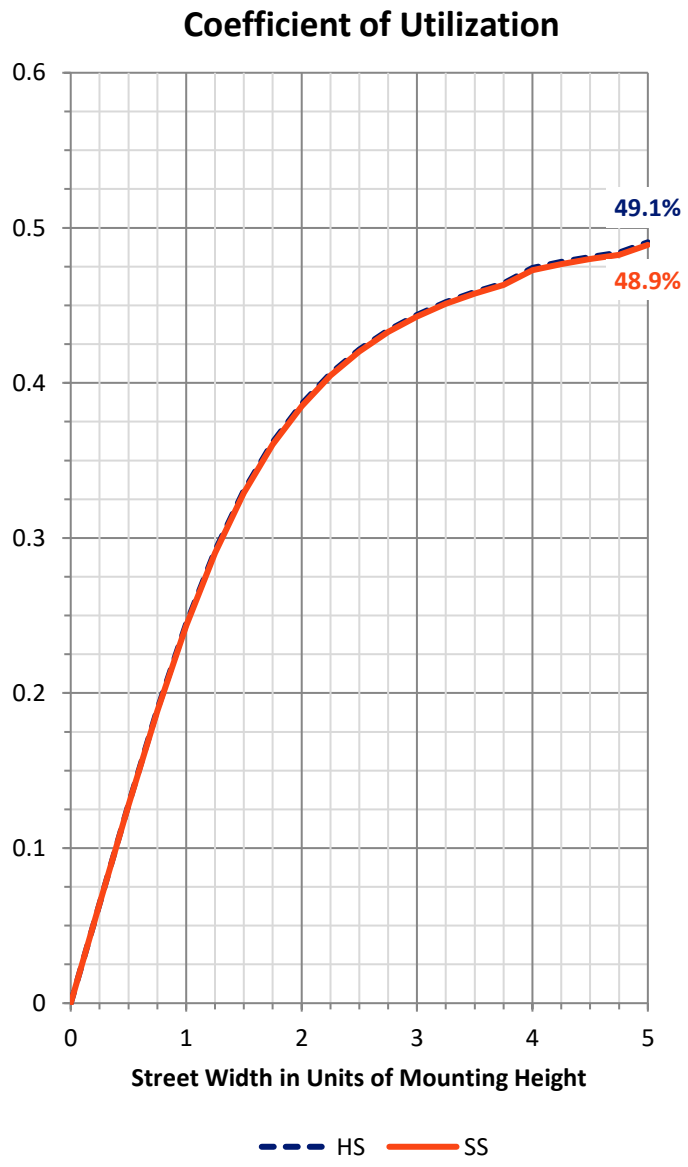
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1414.5	0.0	1414.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	1414.5	0.0	1414.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	2829.0	0.0	2829.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	21.1	0.7
10°-20°	71.2	2.5
20°-30°	143.0	5.1
30°-40°	242.1	8.6
40°-50°	387.0	13.7
50°-60°	558.9	19.8
60°-70°	673.1	23.8
70°-80°	557.6	19.7
80°-90°	175.0	6.2
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°	2829.0	100.0
0°-180°	2829.0	100.0



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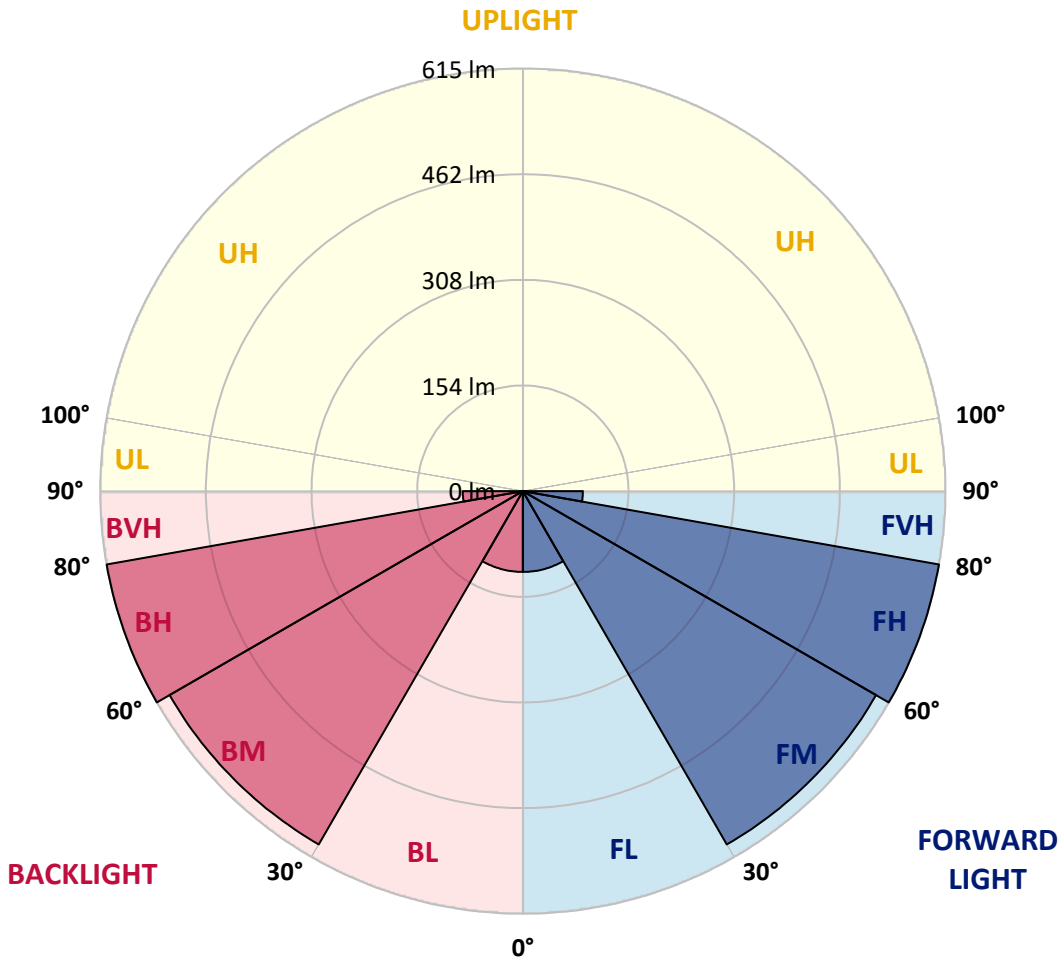
REPORT NUMBER: P879962
CATALOG NUMBER: MEM2-HSN-VA-30-727-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	117.7	4.2			
FM	(30°-60°)	594.0	21.0			
FH	(60°-80°)	615.3	21.8			G0/660
FVH	(80°-90°)	87.5	3.1			G1/100
BL	(0°-30°)	117.7	4.2	B1/500		
BM	(30°-60°)	594.0	21.0	B1/1000		
BH	(60°-80°)	615.3	21.8	B2/1000		G0/660
BVH	(80°-90°)	87.5	3.1			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G1
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	214.1	214.1	214.1	214.1	214.1	214.1	214.1	214.1	214.1	214.1	214.1
2.5°	215.0	215.0	215.0	215.0	215.0	215.0	215.0	215.0	215.0	215.0	215.0
5°	218.4	218.4	218.4	217.6	217.6	217.6	218.4	218.4	218.4	218.4	218.4
7.5°	222.7	222.7	222.7	222.7	222.7	222.7	221.9	221.9	221.9	221.9	222.7
10°	228.8	229.7	229.7	228.8	228.8	228.8	227.9	227.9	228.8	228.8	227.9
12.5°	237.4	237.4	237.4	237.4	236.6	236.6	236.6	236.6	236.6	236.6	236.6
15°	246.9	246.9	246.9	246.9	246.9	246.9	246.9	246.9	246.1	245.2	245.2
17.5°	259.0	258.1	259.9	259.0	260.7	261.6	259.9	259.0	258.1	257.3	256.4
20°	273.7	274.6	276.3	277.1	278.0	278.9	276.3	275.4	273.7	272.8	272.0
22.5°	291.0	291.0	292.7	292.7	294.4	294.4	293.5	291.0	289.2	289.2	288.4
25°	305.6	306.5	308.2	308.2	309.9	309.9	309.1	307.4	304.8	303.0	302.2
27.5°	321.2	321.2	322.0	324.6	325.5	325.5	324.6	322.0	318.6	316.9	316.9
30°	335.8	336.7	337.6	341.0	342.8	343.6	340.2	337.6	333.3	331.5	331.5
32.5°	353.1	353.1	354.8	360.0	362.6	363.5	360.0	355.7	350.5	347.1	347.1
35°	372.1	371.2	376.4	381.6	387.7	387.7	385.1	378.2	370.4	366.1	365.2
37.5°	397.1	398.0	403.2	412.7	422.2	422.2	419.6	407.5	398.9	391.1	389.4
40°	426.5	427.4	436.9	448.1	458.4	461.9	456.7	444.6	430.0	418.7	417.9
42.5°	451.5	455.0	464.5	480.0	490.4	495.6	487.8	474.0	457.6	444.6	442.0
45°	475.7	479.2	491.3	507.7	520.6	524.1	517.2	500.8	481.8	467.9	466.2
47.5°	498.2	501.6	513.7	535.3	549.1	552.6	546.5	527.5	504.2	490.4	488.7
50°	518.9	526.7	541.3	564.6	584.5	586.2	577.6	555.1	531.0	512.0	509.4
52.5°	547.4	550.8	571.5	602.6	625.1	632.8	619.0	594.9	559.5	537.0	532.7
55°	581.9	583.6	606.1	642.3	671.7	682.1	664.8	633.7	593.1	570.7	567.2
57.5°	601.8	609.5	635.4	674.3	706.2	720.0	703.6	663.1	623.4	594.9	587.1
60°	610.4	618.2	646.7	693.3	727.8	736.5	724.4	684.7	632.8	600.9	595.7
62.5°	619.0	626.8	655.3	706.2	739.9	752.0	733.0	697.6	641.5	610.4	603.5
65°	617.3	625.9	660.5	710.6	753.7	767.5	748.5	696.7	646.7	607.8	602.6
67.5°	600.0	607.8	644.1	699.3	746.8	761.5	740.8	687.2	631.1	591.4	585.4
70°	565.5	575.0	610.4	670.8	714.9	721.8	706.2	657.9	599.2	556.9	549.1
72.5°	518.9	528.4	564.6	626.8	661.3	673.4	656.2	614.7	555.1	512.0	505.1
75°	463.6	469.7	503.3	562.1	599.2	610.4	597.5	552.6	492.1	457.6	449.8
77.5°	398.9	407.5	437.7	486.9	516.3	526.7	514.6	482.6	426.5	397.1	391.1
80°	313.4	323.8	351.4	388.5	419.6	427.4	417.0	382.5	347.1	315.1	308.2
82.5°	226.2	228.8	253.8	280.6	303.9	308.2	300.5	281.5	244.3	222.7	213.3
85°	118.3	121.7	139.9	159.7	174.4	177.0	173.5	152.8	140.7	120.9	113.1
87.5°	26.8	27.6	32.8	36.3	44.0	43.2	45.8	36.3	34.5	28.5	25.0
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: SP1-2407-176-2

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-727-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-727-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

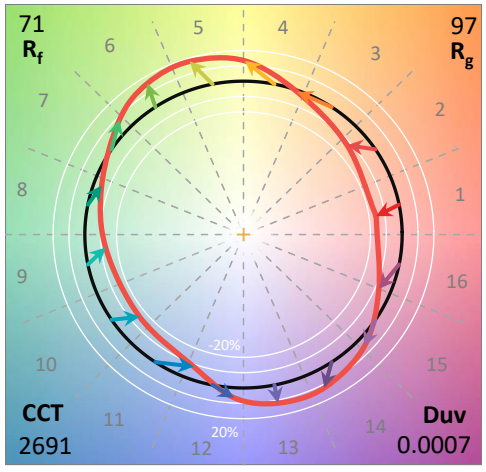
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-2
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-30-727-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	2691	CRI (Ra):	70.6		
CIE u':	0.2627	R1:	67.7	R9:	-27.1
CIE v':	0.5285	R2:	79.8	R10:	53.1
Duv:	0.0007	R3:	90.6	R11:	61.9
CIE x:	0.4618	R4:	67.7	R12:	42.2
CIE y:	0.4129	R5:	65.3	R13:	69.4
CIE z:	0.1254	R6:	71.1	R14:	94.1
Peak Wavelength (nm):	601	R7:	78.1	R15:	60.4
Dominant Wavelength (nm):	584	R8:	44.7		
Purity:	62.54863				

Rf:	70.6
Rg:	97.2



Test Conditions

Stabilization Time:	28M
Operation Time:	1H 28M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-2

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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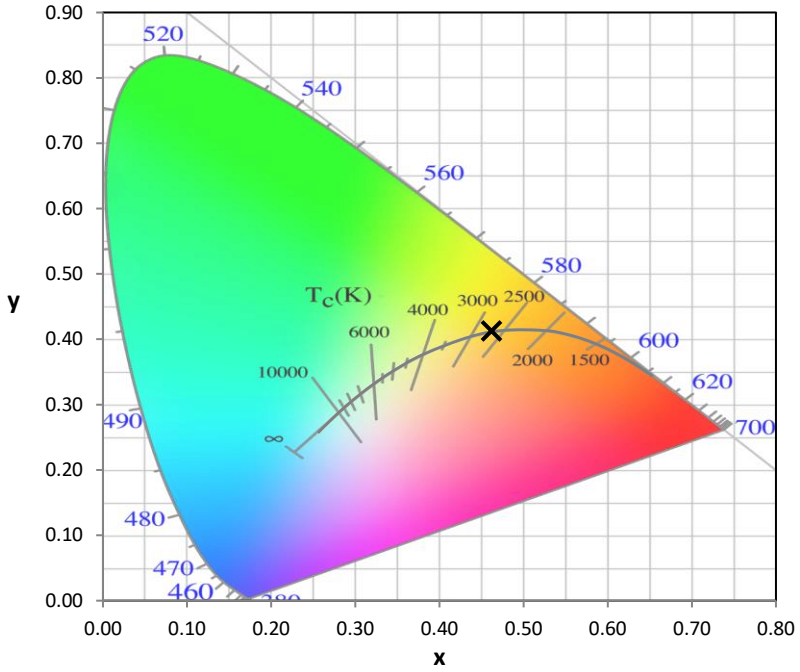
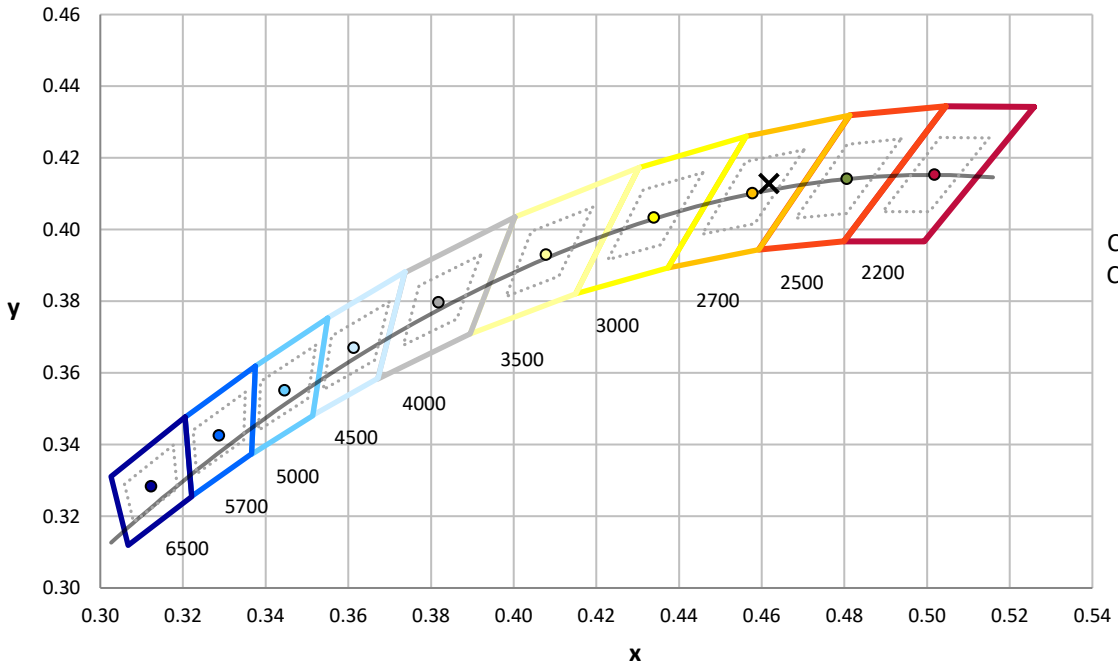
CIE 1931 Chromaticity Diagram



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



CCT = 2691K
CIE x = 0.4618
CIE y = 0.4129
Duv = 0.0007

Point lies inside the ANSI 2700K 4-step quadrangle

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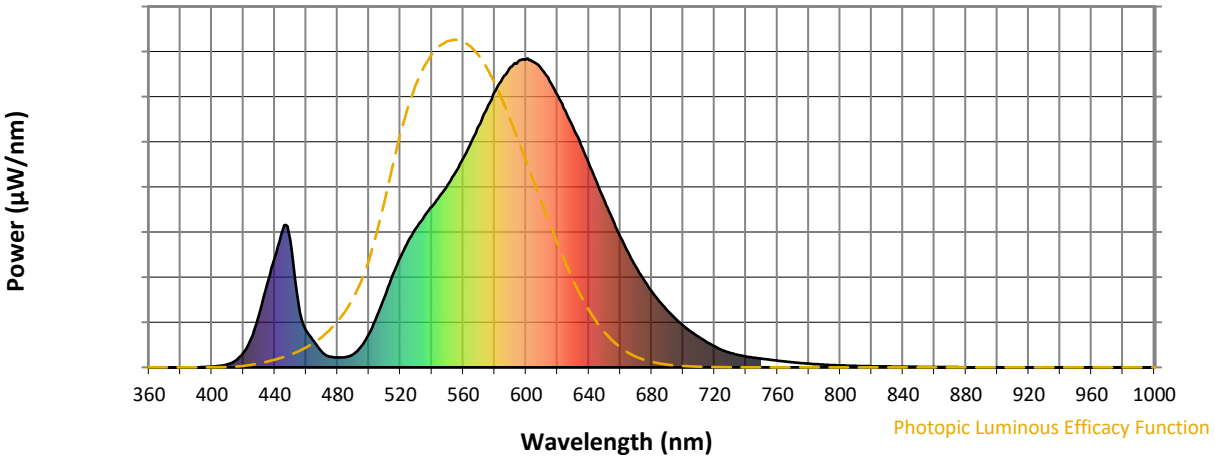
Photopic Flux vs. Wavelength

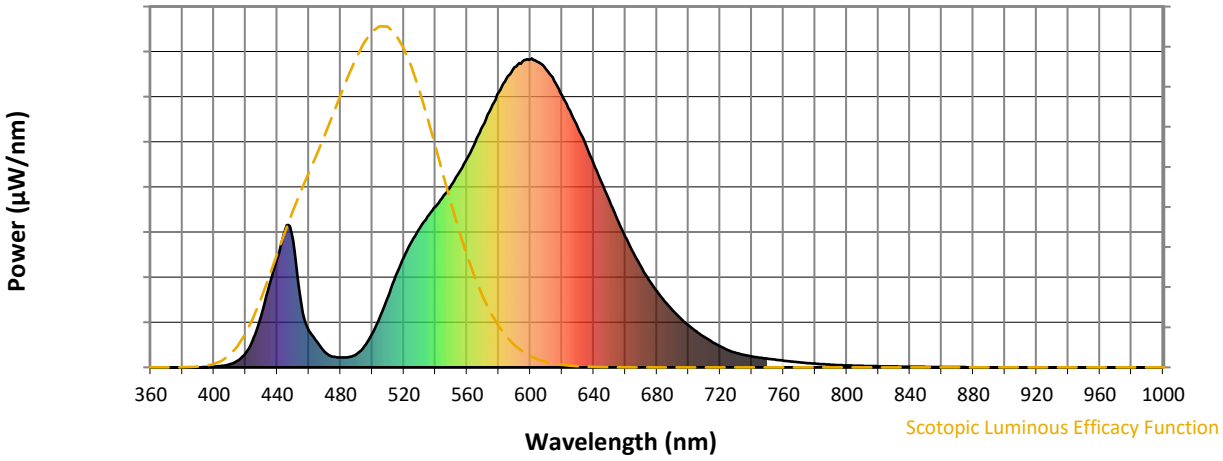


Photopic Lumens: NR

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	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	630	776	NR	760	22	NR	890	0	NR
375	0	NR	505	165	NR	635	720	NR	765	19	NR	895	0	NR
380	0	NR	510	229	NR	640	660	NR	770	16	NR	900	0	NR
385	0	NR	515	297	NR	645	599	NR	775	14	NR	905	0	NR
390	0	NR	520	357	NR	650	538	NR	780	12	NR	910	0	NR
395	1	NR	525	408	NR	655	480	NR	785	10	NR	915	0	NR
400	3	NR	530	451	NR	660	423	NR	790	9	NR	920	0	NR
405	5	NR	535	488	NR	665	372	NR	795	7	NR	925	0	NR
410	10	NR	540	521	NR	670	325	NR	800	6	NR	930	0	NR
415	21	NR	545	555	NR	675	282	NR	805	5	NR	935	0	NR
420	46	NR	550	590	NR	680	246	NR	810	5	NR	940	0	NR
425	94	NR	555	631	NR	685	213	NR	815	4	NR	945	0	NR
430	169	NR	560	677	NR	690	185	NR	820	4	NR	950	0	NR
435	268	NR	565	728	NR	695	158	NR	825	3	NR	955	0	NR
440	354	NR	570	782	NR	700	136	NR	830	3	NR	960	0	NR
445	445	NR	575	838	NR	705	116	NR	835	2	NR	965	0	NR
450	411	NR	580	891	NR	710	98	NR	840	2	NR	970	0	NR
455	210	NR	585	935	NR	715	82	NR	845	2	NR	975	0	NR
460	119	NR	590	972	NR	720	68	NR	850	2	NR	980	0	NR
465	84	NR	595	991	NR	725	56	NR	855	1	NR	985	0	NR
470	50	NR	600	997	NR	730	47	NR	860	1	NR	990	0	NR
475	35	NR	605	988	NR	735	40	NR	865	1	NR	995	0	NR
480	32	NR	610	965	NR	740	35	NR	870	1	NR	1000	0	NR
485	33	NR	615	927	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-2

Scotopic Flux vs. Wavelength

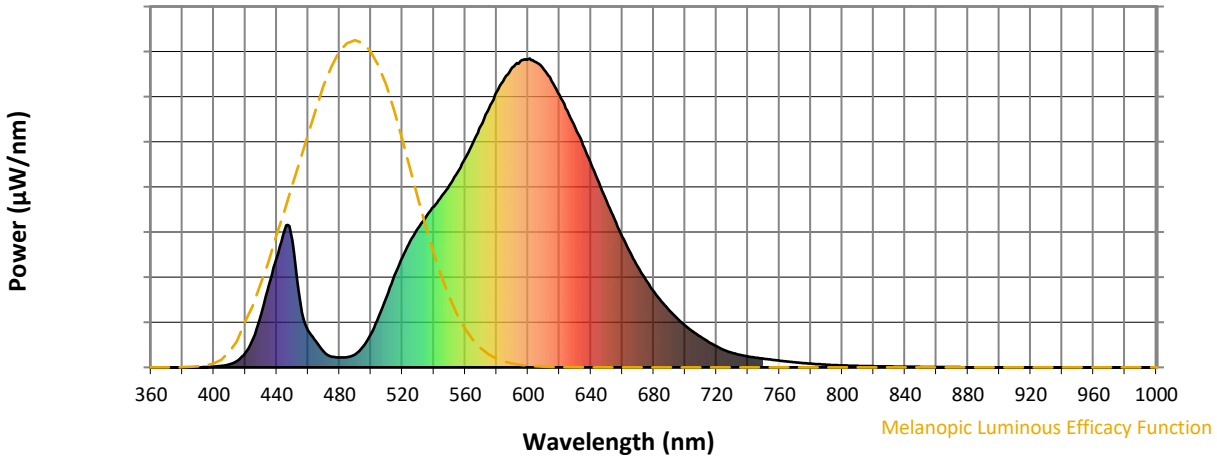


Scotopic Lumens: NR **S/P: 1.03**

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	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	630	776	NR	760	22	NR	890	0	NR
375	0	NR	505	165	NR	635	720	NR	765	19	NR	895	0	NR
380	0	NR	510	229	NR	640	660	NR	770	16	NR	900	0	NR
385	0	NR	515	297	NR	645	599	NR	775	14	NR	905	0	NR
390	0	NR	520	357	NR	650	538	NR	780	12	NR	910	0	NR
395	1	NR	525	408	NR	655	480	NR	785	10	NR	915	0	NR
400	3	NR	530	451	NR	660	423	NR	790	9	NR	920	0	NR
405	5	NR	535	488	NR	665	372	NR	795	7	NR	925	0	NR
410	10	NR	540	521	NR	670	325	NR	800	6	NR	930	0	NR
415	21	NR	545	555	NR	675	282	NR	805	5	NR	935	0	NR
420	46	NR	550	590	NR	680	246	NR	810	5	NR	940	0	NR
425	94	NR	555	631	NR	685	213	NR	815	4	NR	945	0	NR
430	169	NR	560	677	NR	690	185	NR	820	4	NR	950	0	NR
435	268	NR	565	728	NR	695	158	NR	825	3	NR	955	0	NR
440	354	NR	570	782	NR	700	136	NR	830	3	NR	960	0	NR
445	445	NR	575	838	NR	705	116	NR	835	2	NR	965	0	NR
450	411	NR	580	891	NR	710	98	NR	840	2	NR	970	0	NR
455	210	NR	585	935	NR	715	82	NR	845	2	NR	975	0	NR
460	119	NR	590	972	NR	720	68	NR	850	2	NR	980	0	NR
465	84	NR	595	991	NR	725	56	NR	855	1	NR	985	0	NR
470	50	NR	600	997	NR	730	47	NR	860	1	NR	990	0	NR
475	35	NR	605	988	NR	735	40	NR	865	1	NR	995	0	NR
480	32	NR	610	965	NR	740	35	NR	870	1	NR	1000	0	NR
485	33	NR	615	927	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 1.73**

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	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	630	776	NR	760	22	NR	890	0	NR
375	0	NR	505	165	NR	635	720	NR	765	19	NR	895	0	NR
380	0	NR	510	229	NR	640	660	NR	770	16	NR	900	0	NR
385	0	NR	515	297	NR	645	599	NR	775	14	NR	905	0	NR
390	0	NR	520	357	NR	650	538	NR	780	12	NR	910	0	NR
395	1	NR	525	408	NR	655	480	NR	785	10	NR	915	0	NR
400	3	NR	530	451	NR	660	423	NR	790	9	NR	920	0	NR
405	5	NR	535	488	NR	665	372	NR	795	7	NR	925	0	NR
410	10	NR	540	521	NR	670	325	NR	800	6	NR	930	0	NR
415	21	NR	545	555	NR	675	282	NR	805	5	NR	935	0	NR
420	46	NR	550	590	NR	680	246	NR	810	5	NR	940	0	NR
425	94	NR	555	631	NR	685	213	NR	815	4	NR	945	0	NR
430	169	NR	560	677	NR	690	185	NR	820	4	NR	950	0	NR
435	268	NR	565	728	NR	695	158	NR	825	3	NR	955	0	NR
440	354	NR	570	782	NR	700	136	NR	830	3	NR	960	0	NR
445	445	NR	575	838	NR	705	116	NR	835	2	NR	965	0	NR
450	411	NR	580	891	NR	710	98	NR	840	2	NR	970	0	NR
455	210	NR	585	935	NR	715	82	NR	845	2	NR	975	0	NR
460	119	NR	590	972	NR	720	68	NR	850	2	NR	980	0	NR
465	84	NR	595	991	NR	725	56	NR	855	1	NR	985	0	NR
470	50	NR	600	997	NR	730	47	NR	860	1	NR	990	0	NR
475	35	NR	605	988	NR	735	40	NR	865	1	NR	995	0	NR
480	32	NR	610	965	NR	740	35	NR	870	1	NR	1000	0	NR
485	33	NR	615	927	NR	745	31	NR	875	1	NR			

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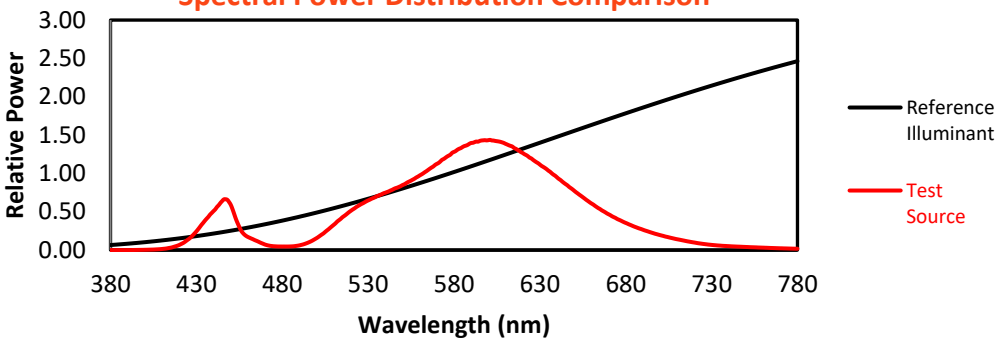
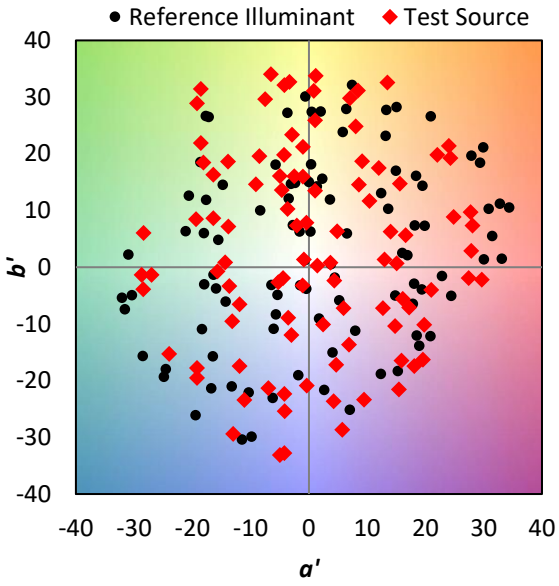
Summary

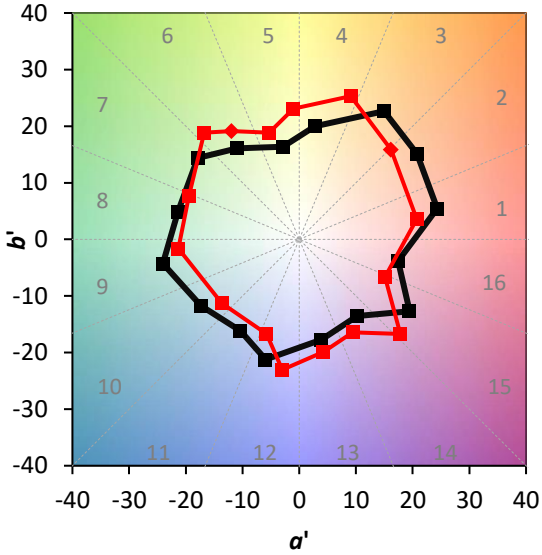
R_f = 70.6
R_g = 97.2
CIE R_a = 70.6
R_9 = -27.1

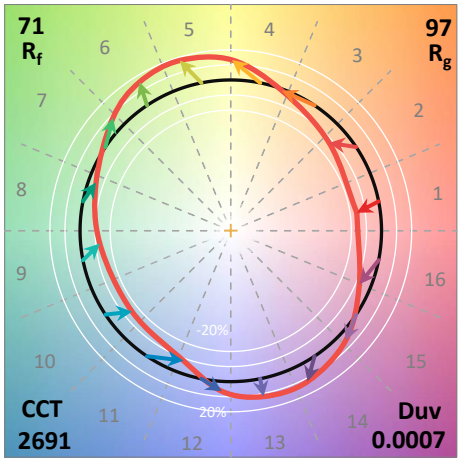
Spectral Power Distribution Comparison

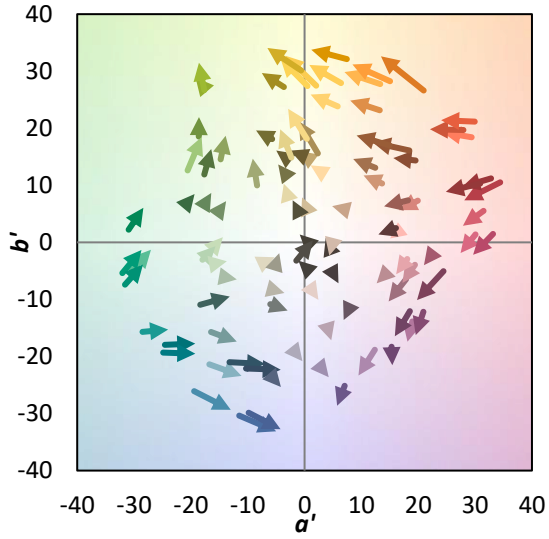


Color Vector Graphics









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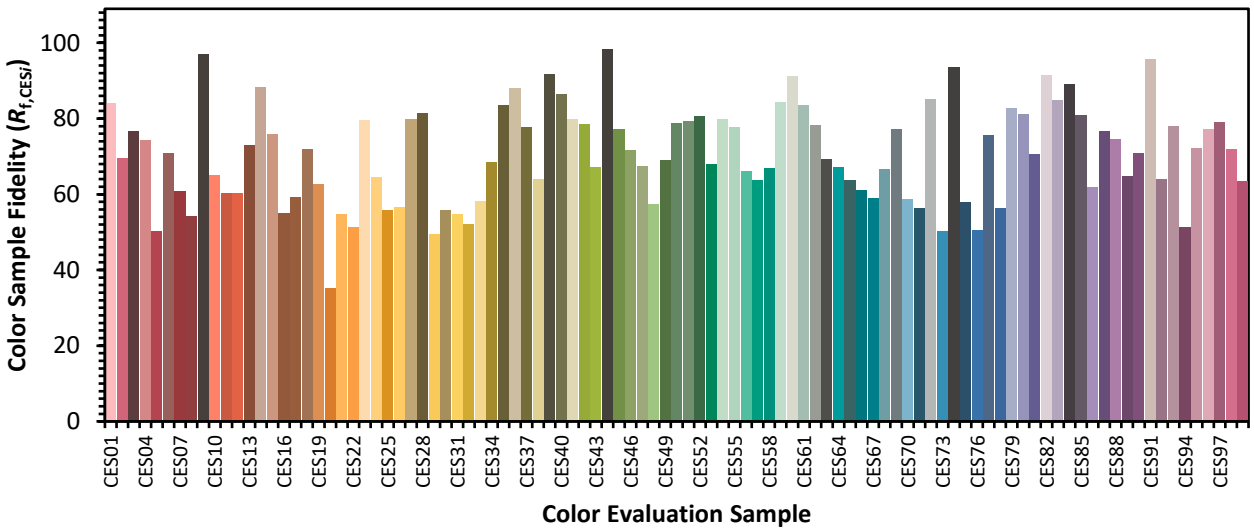
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 57	CES51 = 79	CES76 = 50
CES02 = 63	CES27 = 80	CES52 = 81	CES77 = 76
CES03 = 31	CES28 = 81	CES53 = 68	CES78 = 56
CES04 = 71	CES29 = 49	CES54 = 80	CES79 = 83
CES05 = 50	CES30 = 56	CES55 = 78	CES80 = 81
CES06 = 52	CES31 = 55	CES56 = 66	CES81 = 71
CES07 = 42	CES32 = 52	CES57 = 64	CES82 = 92
CES08 = 41	CES33 = 58	CES58 = 67	CES83 = 85
CES09 = 29	CES34 = 69	CES59 = 84	CES84 = 89
CES10 = 77	CES35 = 84	CES60 = 91	CES85 = 81
CES11 = 60	CES36 = 88	CES61 = 84	CES86 = 62
CES12 = 66	CES37 = 78	CES62 = 78	CES87 = 77
CES13 = 44	CES38 = 64	CES63 = 69	CES88 = 75
CES14 = 74	CES39 = 92	CES64 = 67	CES89 = 65
CES15 = 72	CES40 = 86	CES65 = 64	CES90 = 71
CES16 = 48	CES41 = 80	CES66 = 61	CES91 = 96
CES17 = 51	CES42 = 79	CES67 = 59	CES92 = 64
CES18 = 57	CES43 = 67	CES68 = 67	CES93 = 78
CES19 = 73	CES44 = 98	CES69 = 77	CES94 = 51
CES20 = 67	CES45 = 77	CES70 = 59	CES95 = 72
CES21 = 88	CES46 = 72	CES71 = 56	CES96 = 77
CES22 = 80	CES47 = 67	CES72 = 85	CES97 = 79
CES23 = 92	CES48 = 57	CES73 = 50	CES98 = 72
CES24 = 92	CES49 = 69	CES74 = 94	CES99 = 63
CES25 = 73	CES50 = 79	CES75 = 58	



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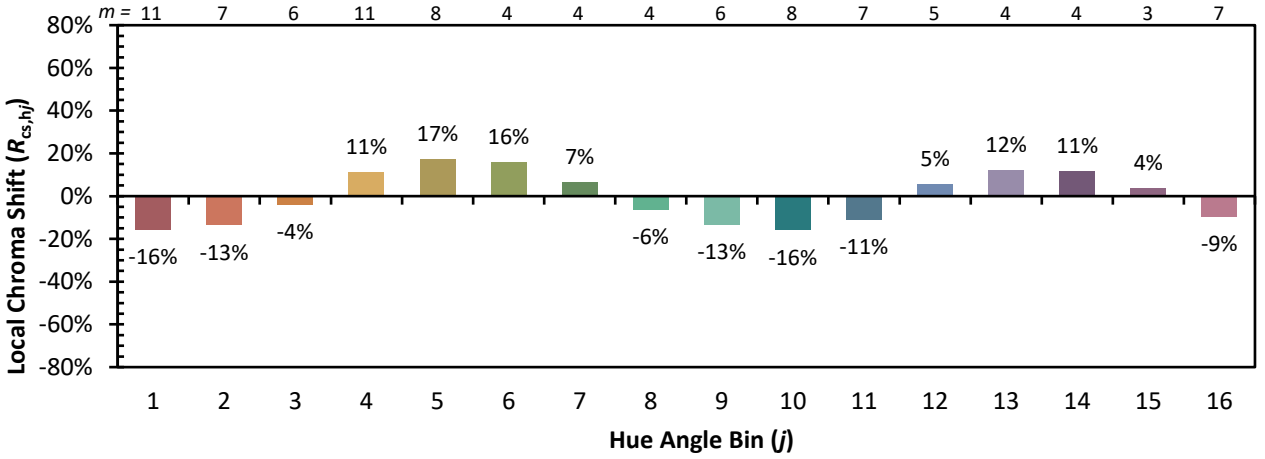
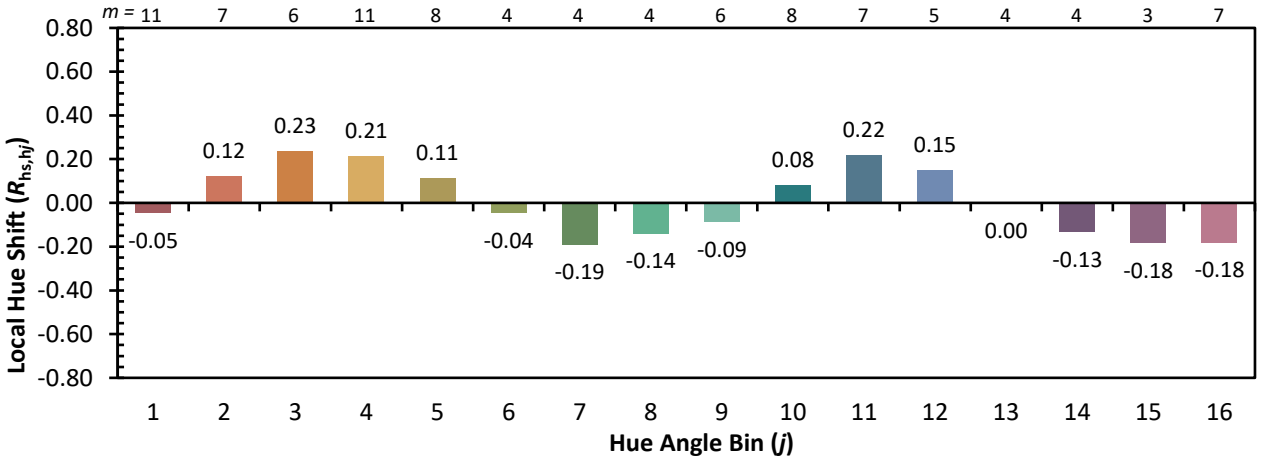
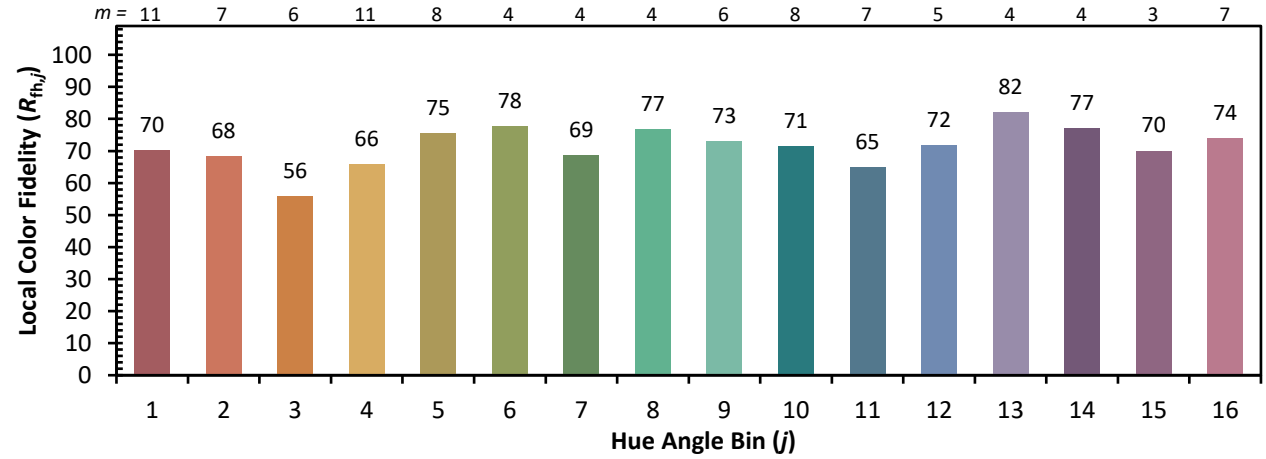
Color Rendition by Hue-Angle Bin







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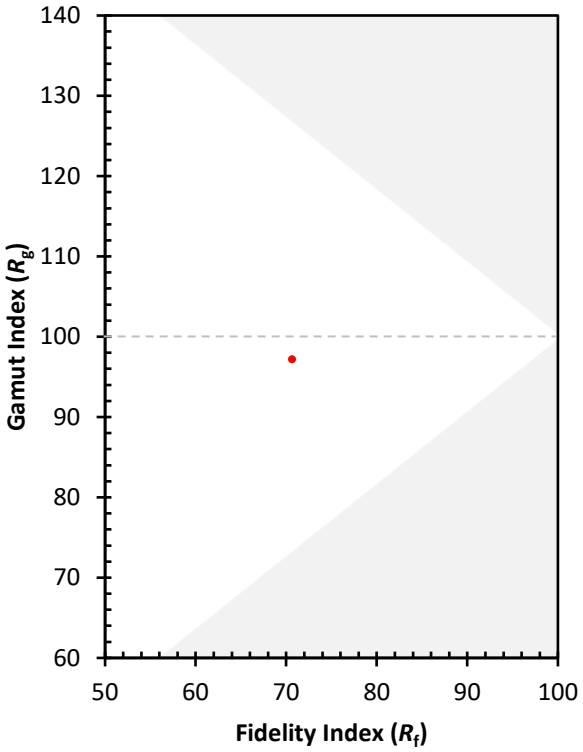
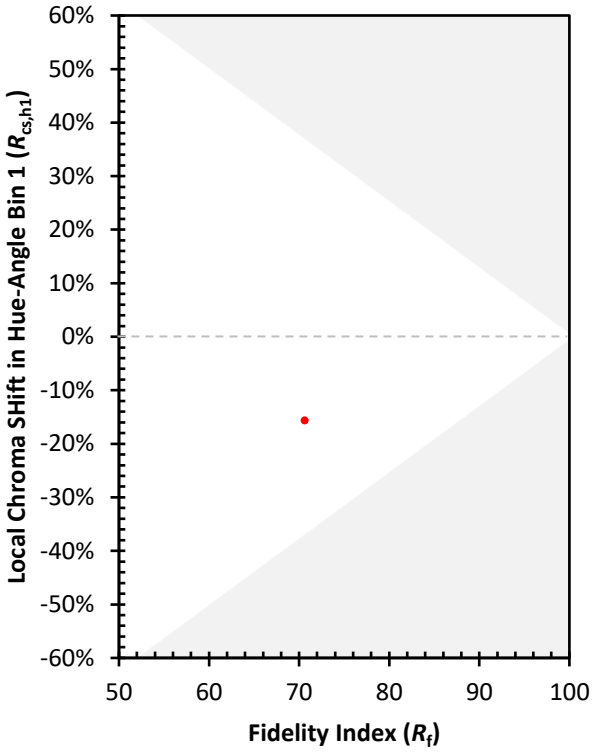
Measure Comparisons





(END OF REPORT)