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: P879534

Luminaire Tested: **MEM2-HTN-VA-160-830-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:	P879534
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	MEM2-HTN-VA-160-830-U-WQ
Description:	EPIC MODERN TALL HOUSING 160W 80CRI 3000K VISUAL COMFORT FIXTURE w/ TYPE V WIDE DISTRIBUTION OPTIC
Light Source:	(1) 3000K CCT, 80 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	14658.4 lumens
Efficiency:	N/A
Efficacy:	94.0 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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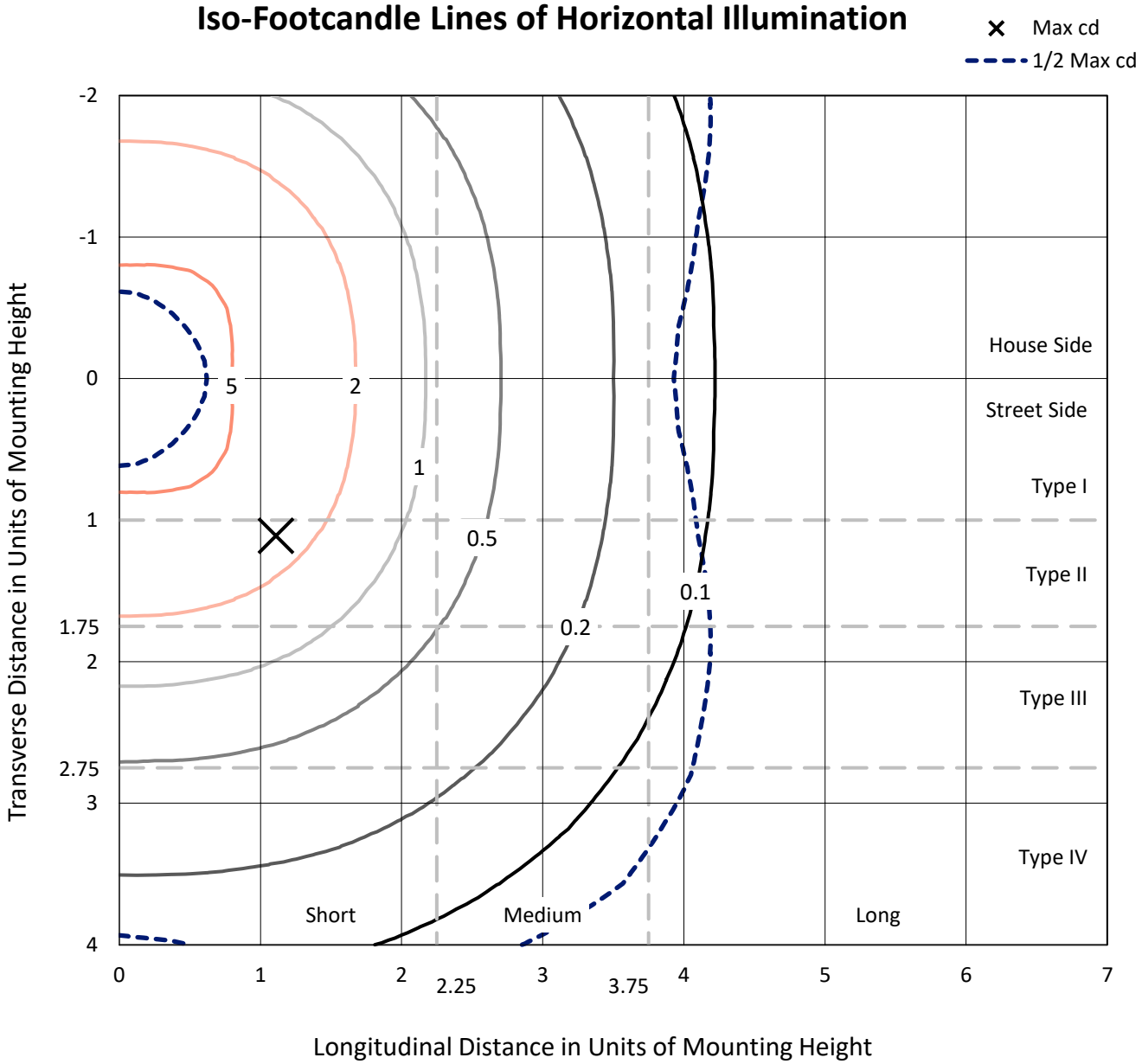
Scaled Data Report

REPORT NUMBER: P879534
CATALOG NUMBER: MEM2-HTN-VA-160-830-U-WQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 5.6 fc
Type V - Short - N/A

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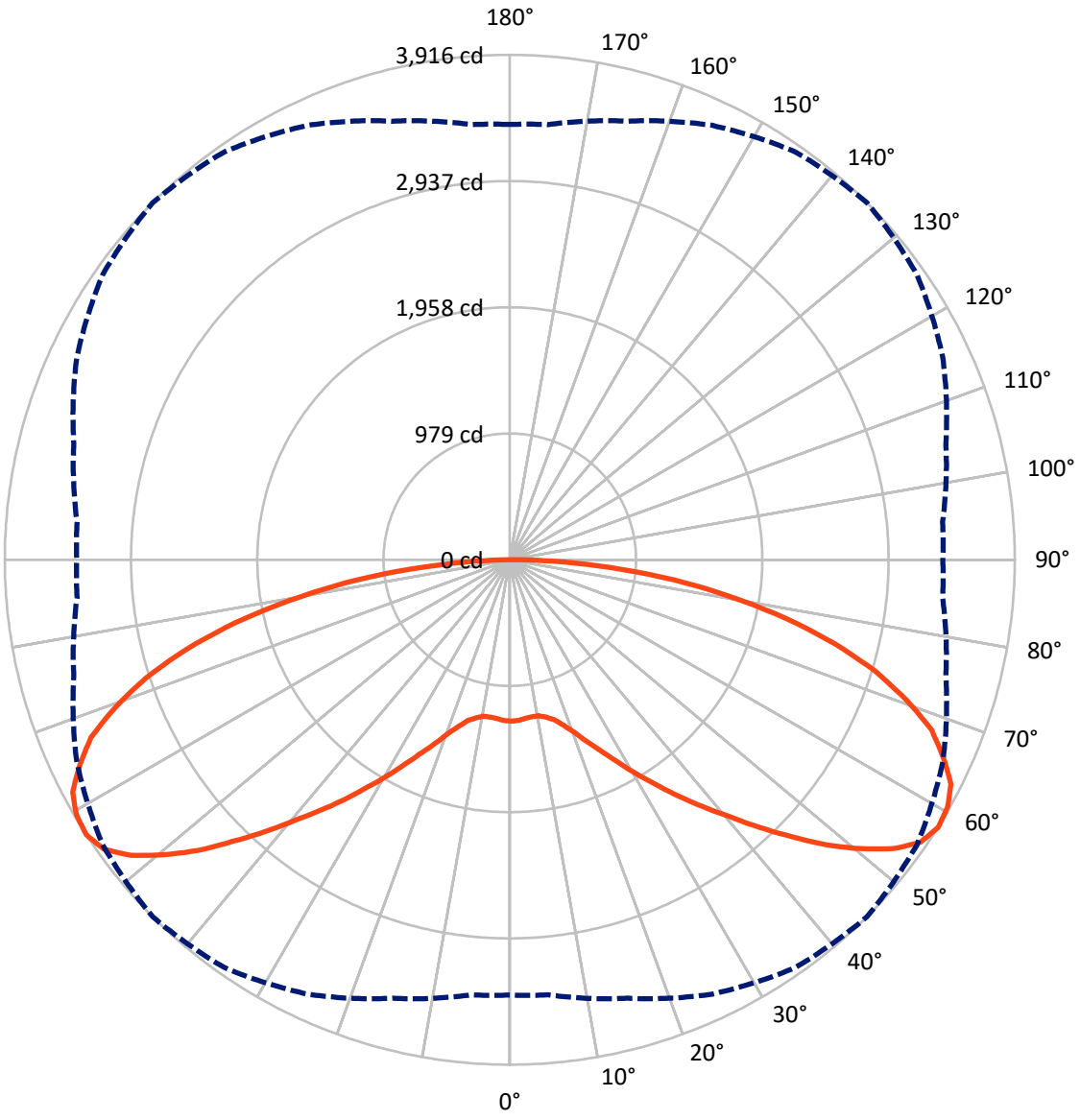
Luminous Intensity Polar Plot



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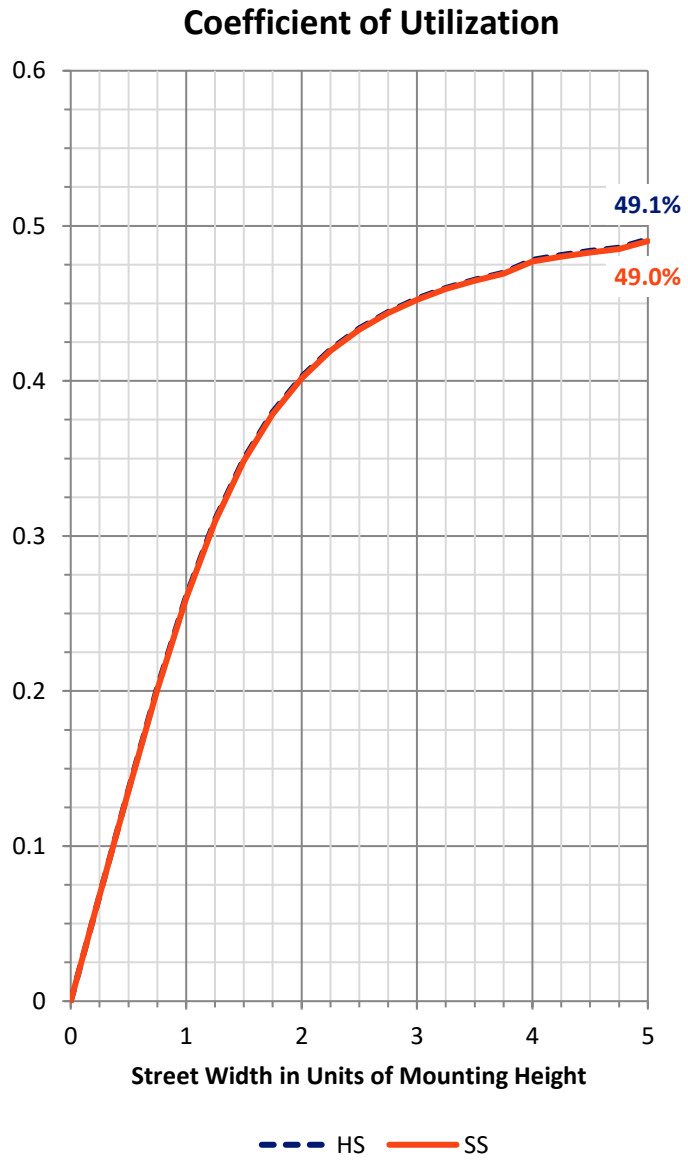
REPORT NUMBER: P879534
CATALOG NUMBER: MEM2-HTN-VA-160-830-U-WQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	7329.2	0.0	7329.2
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	7329.2	0.0	7329.2
	% Fixture	50.0	0.0	50.0
Total	Lumens	14658.4	0.0	14658.4
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.8	0.8
10°-20°	370.6	2.5
20°-30°	761.6	5.2
30°-40°	1389.8	9.5
40°-50°	2279.1	15.5
50°-60°	3193.6	21.8
60°-70°	3340.9	22.8
70°-80°	2440.9	16.7
80°-90°	764.1	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°	14658.4	100.0
0°-180°	14658.4	100.0



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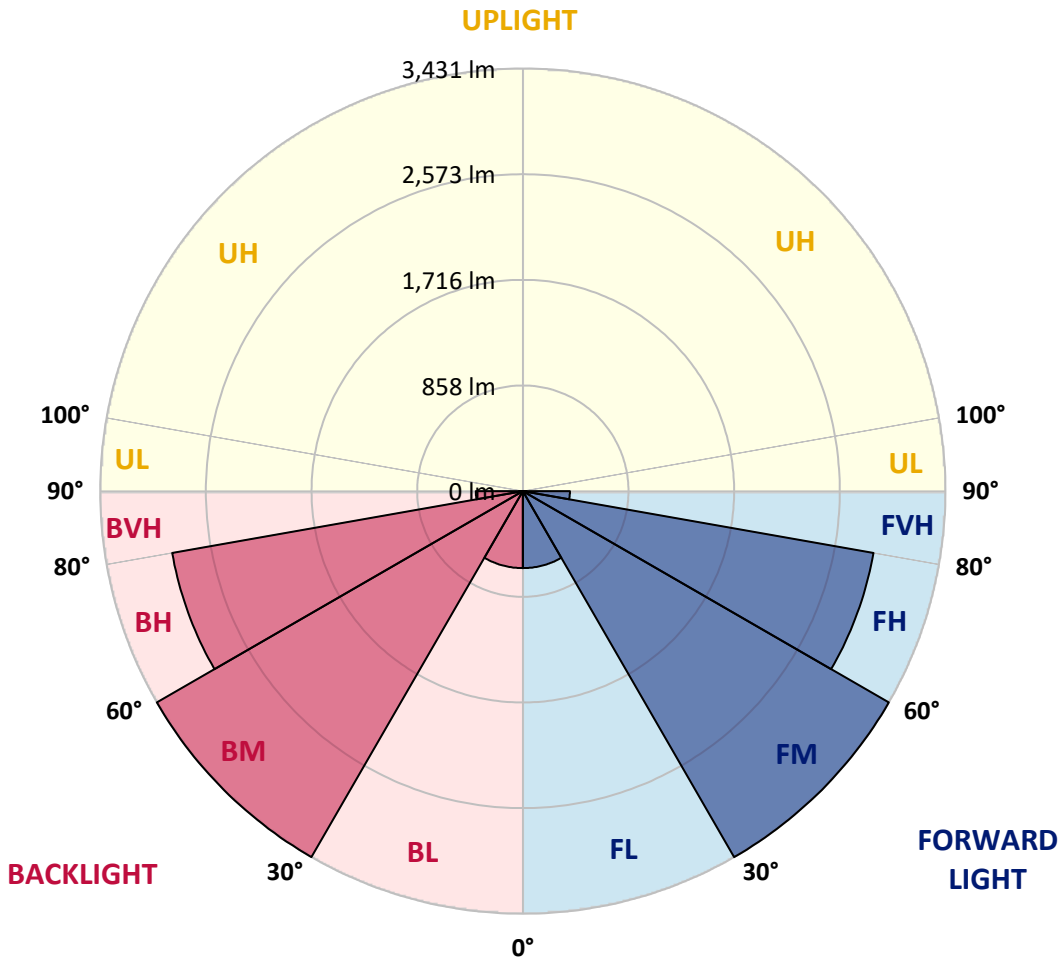
Scaled Data Report

REPORT NUMBER: P879534
CATALOG NUMBER: MEM2-HTN-VA-160-830-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	625.0	4.3			
FM	(30°-60°)	3431.2	23.4			
FH	(60°-80°)	2890.9	19.7			G2/5000
FVH	(80°-90°)	382.0	2.6			G3/500
BL	(0°-30°)	625.0	4.3	B2/1000		
BM	(30°-60°)	3431.2	23.4	B3/5000		
BH	(60°-80°)	2890.9	19.7	B4/5000		G2/5000
BVH	(80°-90°)	382.0	2.6			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: P879534
CATALOG NUMBER: MEM2-HTN-VA-160-830-U-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1251.5	1251.5	1251.5	1251.5	1251.5	1251.5	1251.5	1251.5	1251.5	1251.5	1251.5
2.5°	1246.9	1248.8	1247.9	1247.9	1246.9	1247.9	1249.7	1250.6	1249.7	1250.6	1249.7
5°	1238.7	1238.7	1237.8	1236.8	1236.8	1236.8	1236.8	1236.8	1237.8	1237.8	1238.7
7.5°	1228.6	1228.6	1228.6	1230.4	1229.5	1230.4	1230.4	1229.5	1228.6	1228.6	1229.5
10°	1230.4	1229.5	1228.6	1230.4	1229.5	1230.4	1230.4	1228.6	1229.5	1230.4	1231.3
12.5°	1246.0	1244.2	1246.9	1249.7	1251.5	1253.4	1252.5	1251.5	1248.8	1246.0	1246.0
15°	1280.0	1278.2	1280.9	1284.6	1285.5	1286.4	1289.2	1285.5	1284.6	1280.0	1279.1
17.5°	1328.7	1327.7	1333.3	1340.6	1344.3	1348.9	1344.3	1340.6	1330.5	1328.7	1331.4
20°	1398.4	1395.7	1406.7	1418.6	1422.3	1427.8	1424.2	1416.8	1406.7	1395.7	1395.7
22.5°	1487.5	1493.9	1499.5	1508.6	1523.3	1532.5	1520.6	1507.7	1493.0	1486.6	1482.0
25°	1603.2	1602.3	1607.8	1626.2	1635.3	1641.8	1639.9	1622.5	1609.6	1600.5	1599.5
27.5°	1714.3	1725.3	1736.4	1748.3	1771.2	1774.0	1771.2	1750.1	1729.9	1722.6	1719.8
30°	1862.1	1860.3	1870.4	1898.9	1921.8	1923.7	1916.3	1890.6	1867.7	1853.9	1855.7
32.5°	2006.3	1991.6	2018.2	2037.5	2056.8	2077.0	2057.7	2037.5	2018.2	1988.9	1998.0
35°	2137.6	2149.6	2164.2	2203.7	2243.2	2251.5	2238.6	2197.3	2159.7	2145.9	2130.3
37.5°	2298.3	2298.3	2323.1	2380.9	2416.8	2429.6	2411.2	2369.9	2317.6	2297.4	2290.0
40°	2459.9	2459.9	2497.6	2546.2	2599.5	2617.8	2597.6	2543.5	2500.3	2448.0	2456.2
42.5°	2616.9	2629.8	2679.4	2739.0	2813.4	2838.2	2809.8	2737.2	2674.8	2625.2	2617.8
45°	2790.5	2810.7	2864.8	2963.1	3026.5	3062.3	3022.8	2960.3	2850.2	2802.4	2776.7
47.5°	2979.6	2993.4	3071.4	3165.1	3267.9	3305.6	3258.8	3156.8	3063.2	2978.7	2975.0
50°	3144.0	3141.2	3241.3	3370.8	3487.4	3523.2	3485.6	3375.4	3222.9	3129.3	3138.5
52.5°	3267.0	3282.6	3388.2	3548.0	3672.0	3724.3	3662.8	3530.6	3371.7	3274.4	3245.0
55°	3346.9	3372.6	3495.7	3668.3	3809.7	3865.7	3805.1	3652.7	3479.1	3353.3	3335.9
57.5°	3376.3	3387.3	3521.4	3717.0	3861.1	3916.2	3853.8	3705.0	3500.3	3368.9	3357.9
60°	3331.3	3342.3	3487.4	3687.6	3852.8	3899.7	3850.1	3675.6	3467.2	3333.1	3314.8
62.5°	3221.1	3251.4	3412.1	3610.4	3799.6	3839.1	3787.7	3596.7	3403.8	3242.2	3215.6
65°	3088.9	3121.0	3257.8	3479.1	3650.8	3693.1	3652.7	3469.0	3258.8	3103.6	3077.9
67.5°	2904.3	2909.8	3070.5	3294.6	3476.4	3527.8	3458.0	3290.9	3062.3	2915.3	2895.1
70°	2673.9	2677.5	2848.3	3055.8	3222.9	3265.2	3219.3	3041.1	2836.4	2676.6	2662.8
72.5°	2378.2	2412.2	2553.6	2759.2	2915.3	2964.9	2905.2	2753.7	2564.6	2406.7	2375.4
75°	2064.2	2085.3	2208.3	2407.6	2541.6	2603.2	2554.5	2407.6	2208.3	2077.9	2050.4
77.5°	1696.9	1725.3	1845.6	2013.7	2124.8	2190.9	2137.6	2007.2	1845.6	1726.3	1725.3
80°	1340.6	1333.3	1442.5	1587.6	1697.8	1736.4	1703.3	1576.6	1431.5	1338.8	1325.9
82.5°	930.2	928.3	1046.8	1144.1	1236.8	1280.9	1230.4	1148.7	1036.7	954.0	927.4
85°	528.9	540.8	618.9	679.5	758.4	785.1	767.6	690.5	590.4	517.9	513.3
87.5°	183.6	200.2	214.9	258.9	310.4	333.3	308.5	296.6	263.5	228.6	230.5
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: SP1-2407-176-11

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-130-830-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-830-U-RW

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

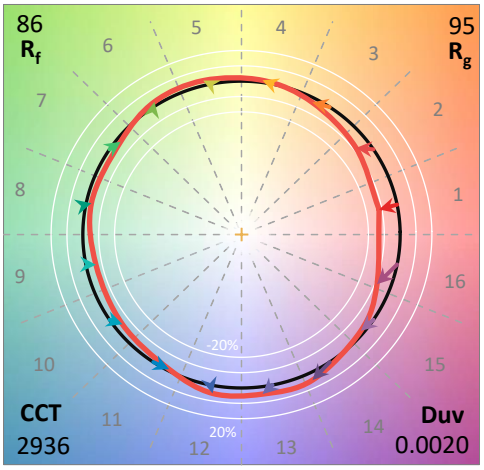
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-11
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-130-830-U-RW**
Description:	EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K):	2936
CIE u':	0.2522
CIE v':	0.5255
Duv:	0.0020
CIE x:	0.4446
CIE y:	0.4117
CIE z:	0.1436
Peak Wavelength (nm):	601
Dominant Wavelength (nm):	582
Purity:	57.05514
Rf:	85.6
Rg:	95.3

CRI (Ra):	82.0
R1:	79.9
R2:	90.0
R3:	96.9
R4:	80.9
R5:	80.4
R6:	88.8
R7:	82.7
R8:	56.8
R9:	1.5
R10:	78.0
R11:	80.9
R12:	73.9
R13:	82.1
R14:	98.8
R15:	71.1



Test Conditions

Stabilization Time:	54M
Operation Time:	1H 54M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-11

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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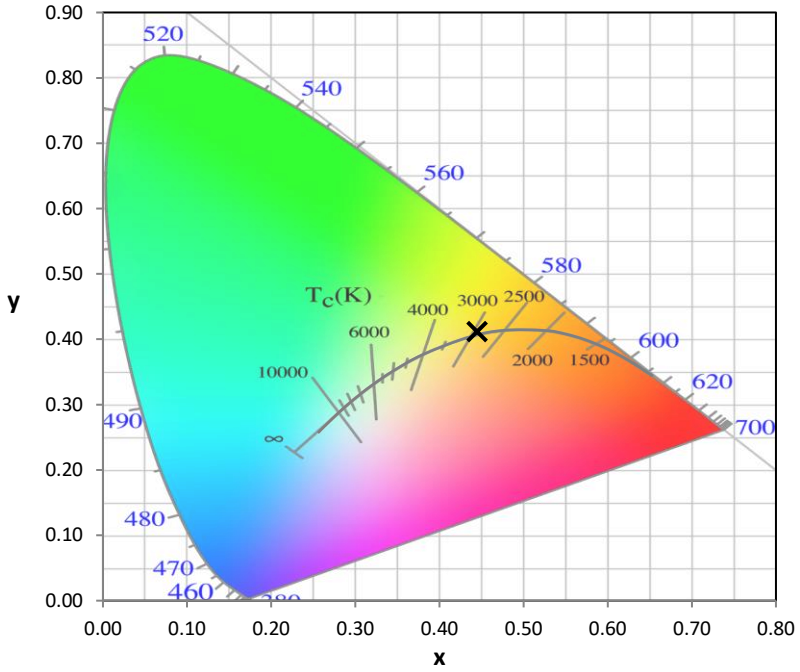
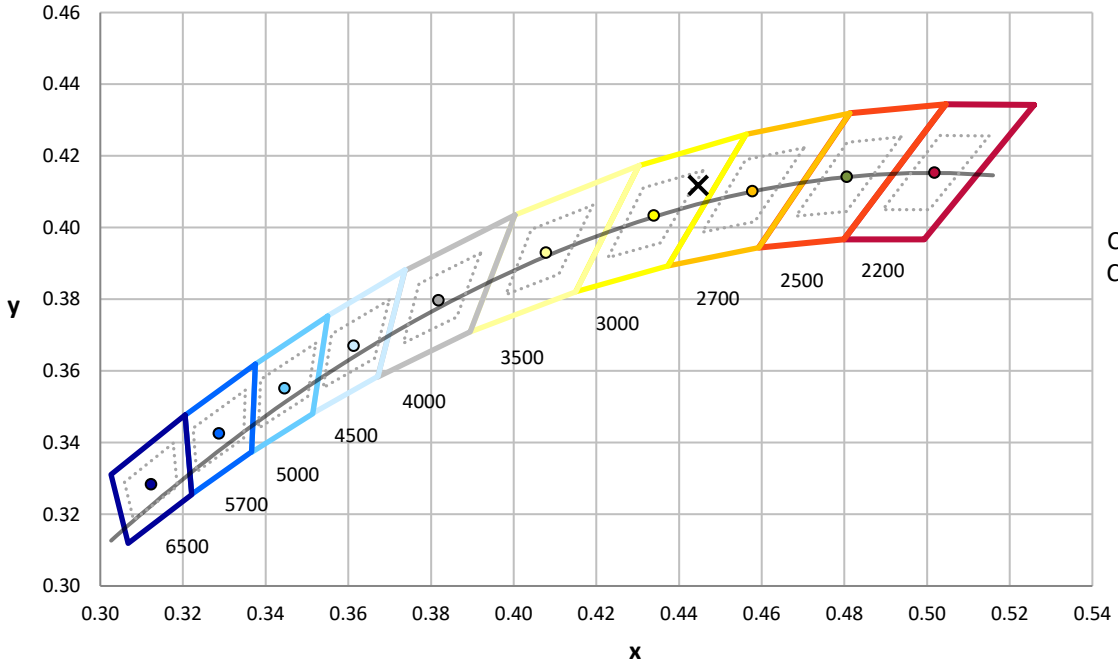
CIE 1931 Chromaticity Diagram



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



CCT = 2936K
CIE x = 0.4446
CIE y = 0.4117
Duv = 0.0020

Point lies inside the ANSI 3000K 7-step quadrangle

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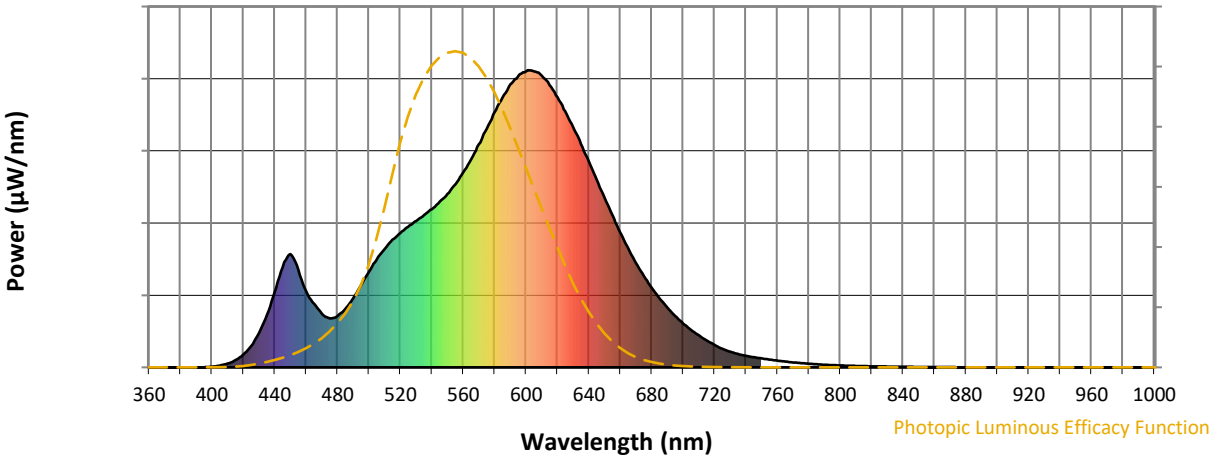
Photopic Flux vs. Wavelength



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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

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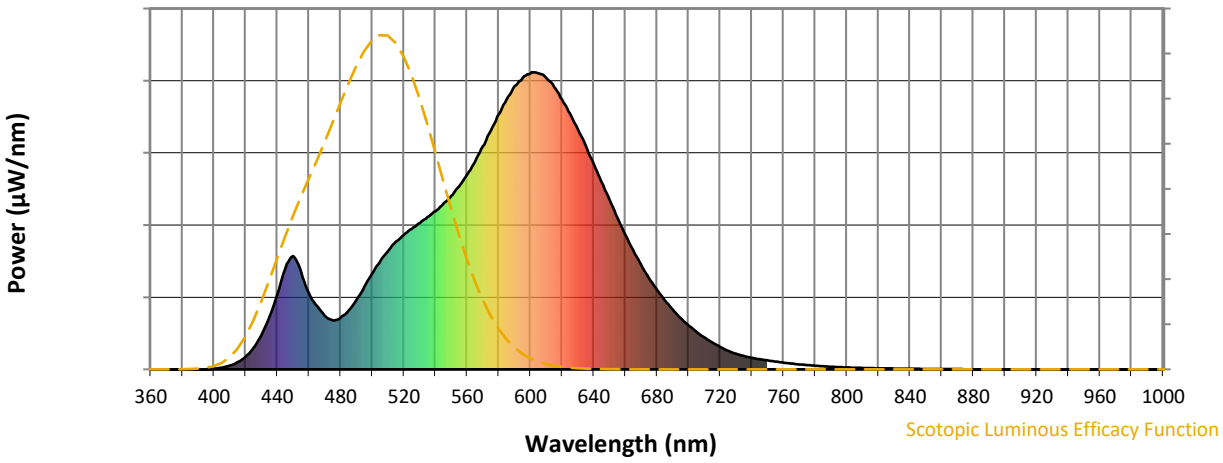
Scotopic Flux vs. Wavelength

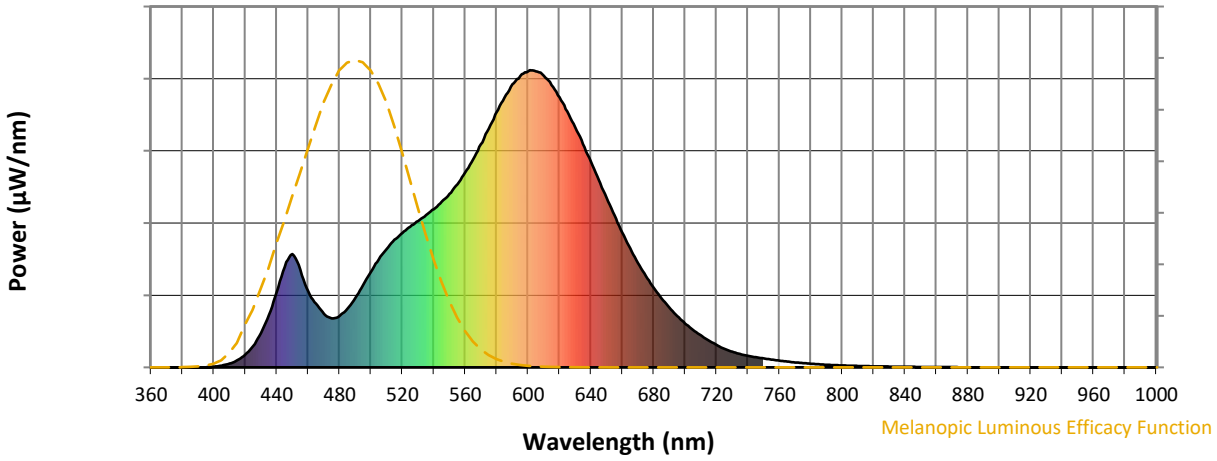


Scotopic Lumens: NR **S/P: 1.3**

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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-11

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.46**

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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

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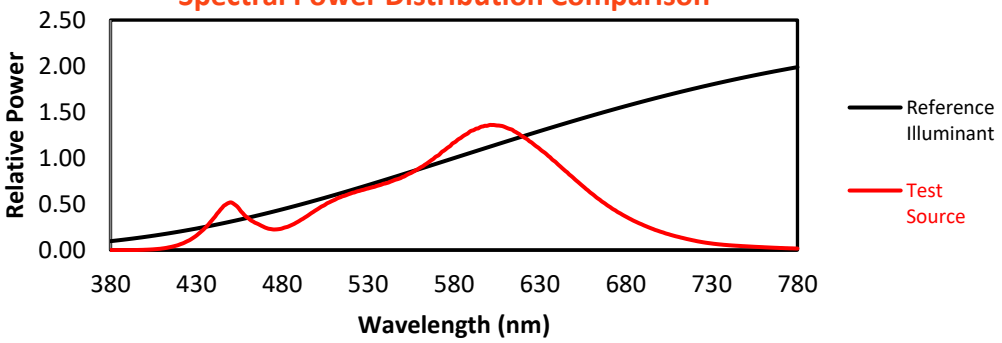
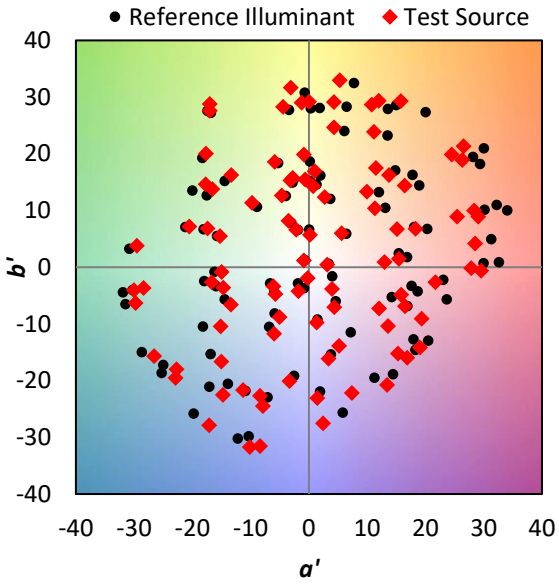
Summary

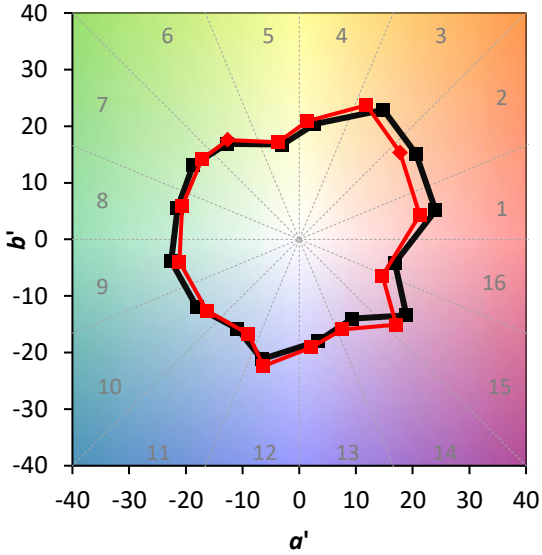
R_f = 85.6
R_g = 95.3
CIE R_a = 82.0
R_9 = 1.5

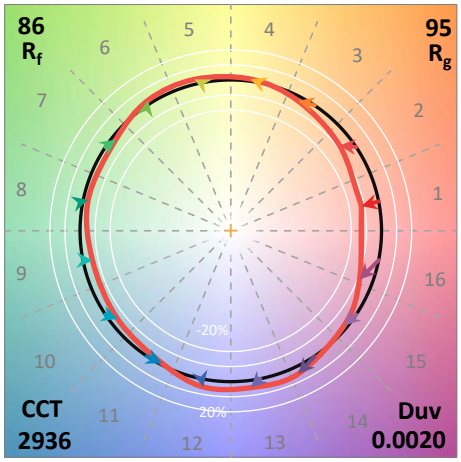
Spectral Power Distribution Comparison

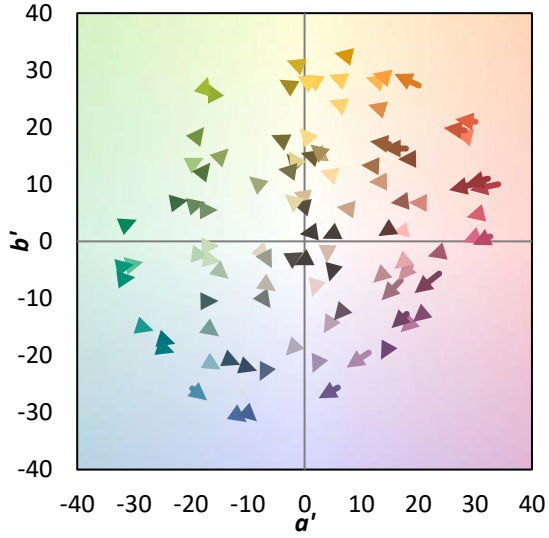


Color Vector Graphics









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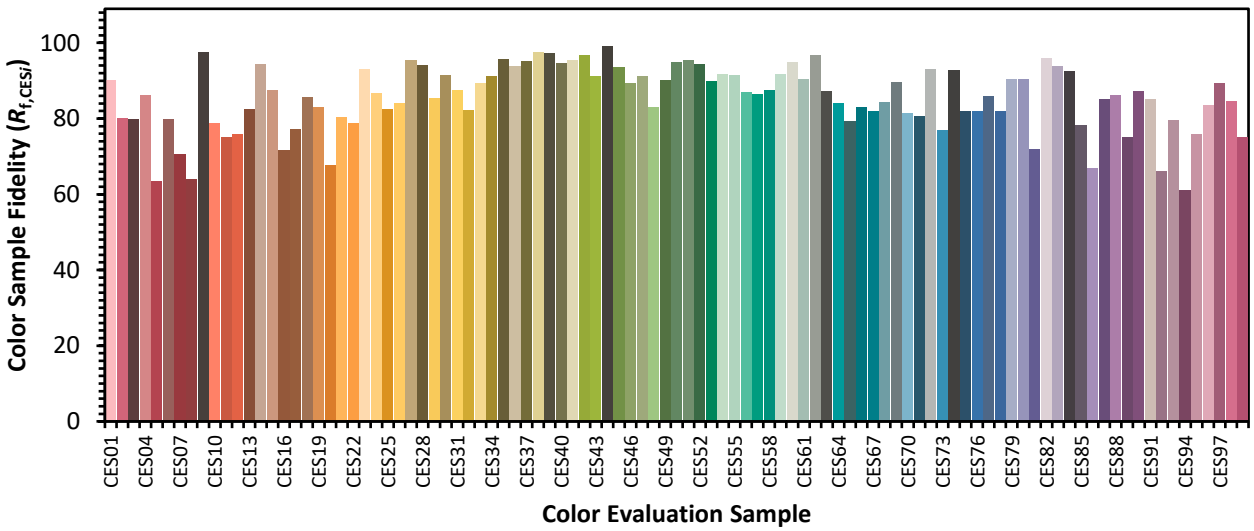
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 84	CES51 = 95	CES76 = 82
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 94	CES53 = 90	CES78 = 82
CES04 = 71	CES29 = 85	CES54 = 92	CES79 = 90
CES05 = 50	CES30 = 91	CES55 = 92	CES80 = 90
CES06 = 51	CES31 = 87	CES56 = 87	CES81 = 72
CES07 = 42	CES32 = 82	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 89	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 93
CES10 = 76	CES35 = 96	CES60 = 95	CES85 = 78
CES11 = 59	CES36 = 94	CES61 = 90	CES86 = 67
CES12 = 65	CES37 = 95	CES62 = 97	CES87 = 85
CES13 = 44	CES38 = 98	CES63 = 87	CES88 = 86
CES14 = 74	CES39 = 97	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 79	CES90 = 87
CES16 = 48	CES41 = 95	CES66 = 83	CES91 = 85
CES17 = 50	CES42 = 97	CES67 = 82	CES92 = 66
CES18 = 57	CES43 = 91	CES68 = 84	CES93 = 80
CES19 = 72	CES44 = 99	CES69 = 90	CES94 = 61
CES20 = 67	CES45 = 93	CES70 = 81	CES95 = 76
CES21 = 87	CES46 = 89	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 91	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 85
CES24 = 91	CES49 = 90	CES74 = 93	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 82	



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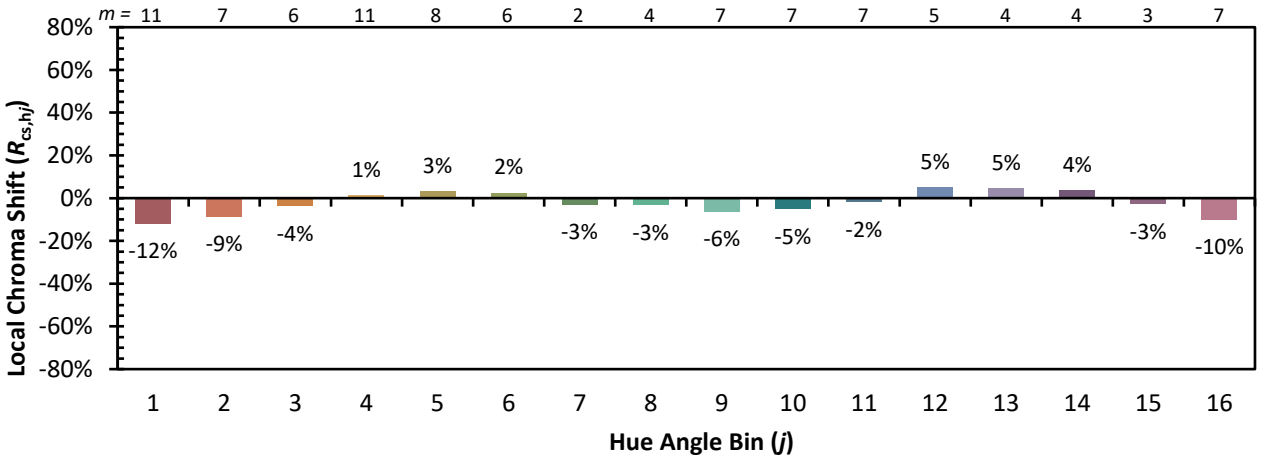
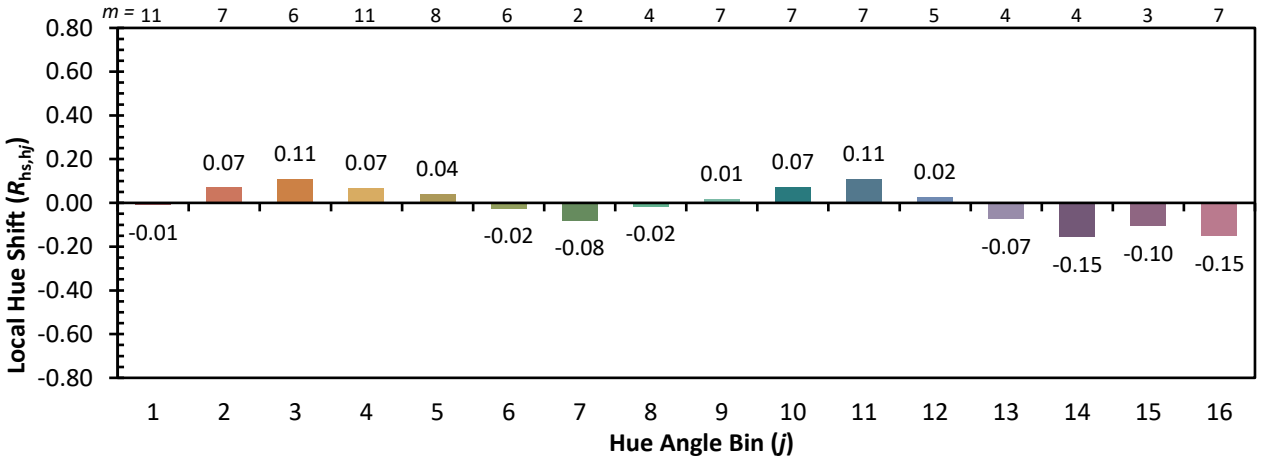
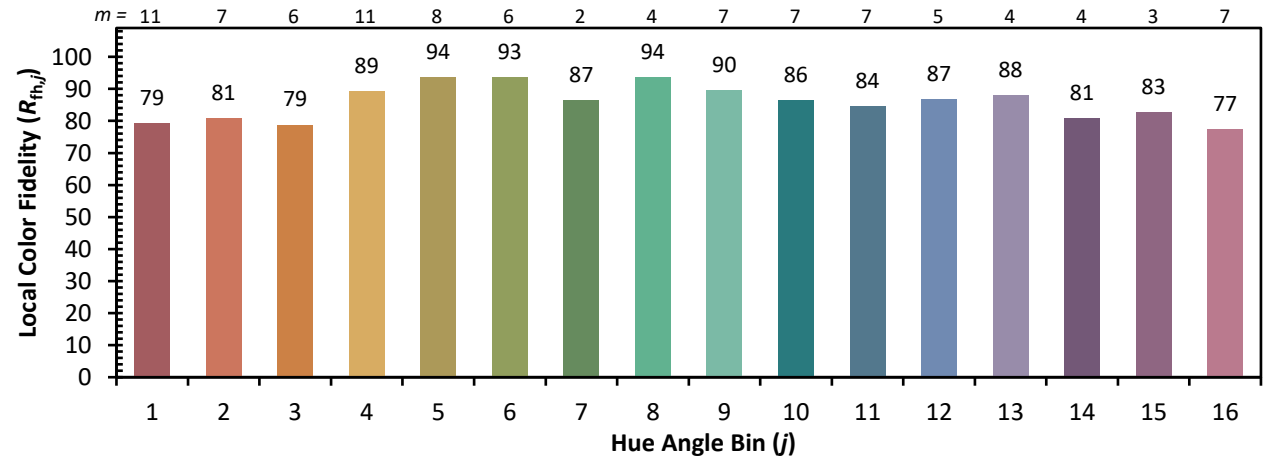
Color Rendition by Hue-Angle Bin







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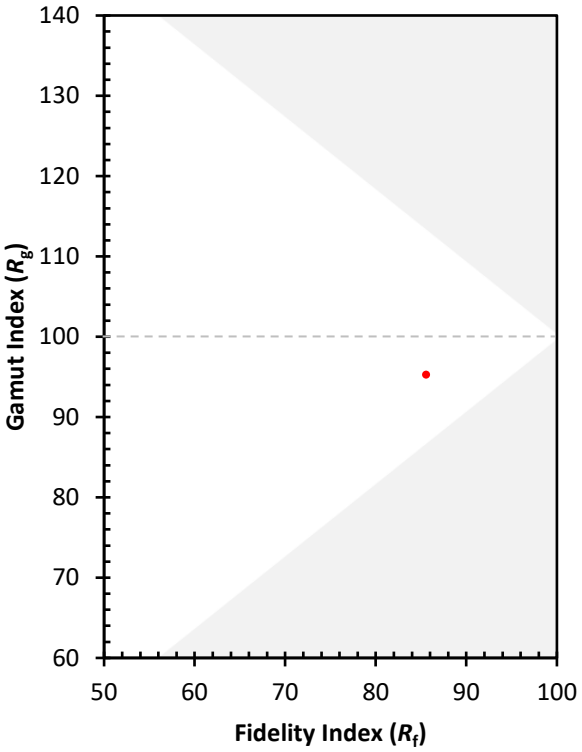
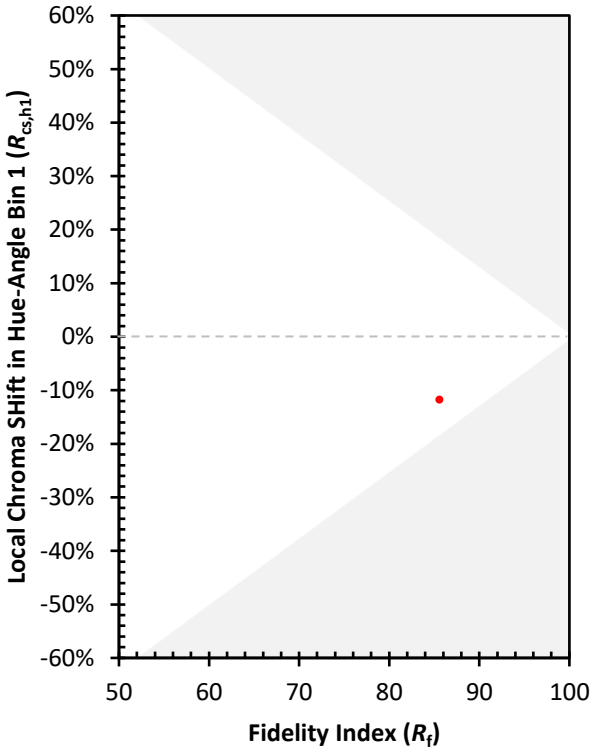
Measure Comparisons





(END OF REPORT)