

Signify Classified - Internal
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: McGRAW-EDISON

Report Number: P821161

Luminaire Tested: **TT-D5-830-24VDC-RW-PM**

Issue Date: 10/15/2020

Test Information

Test Method: LM-79-08
Report Number: P821161
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-981-1)
Test Lab: INNOVATION CENTER
Issue Date: 10/15/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D5-830-24VDC-RW-PM
Description: TOPTIER LED SITE LUMINAIRE
3000K, 80 CRI LEDS AND RECTANGULAR DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

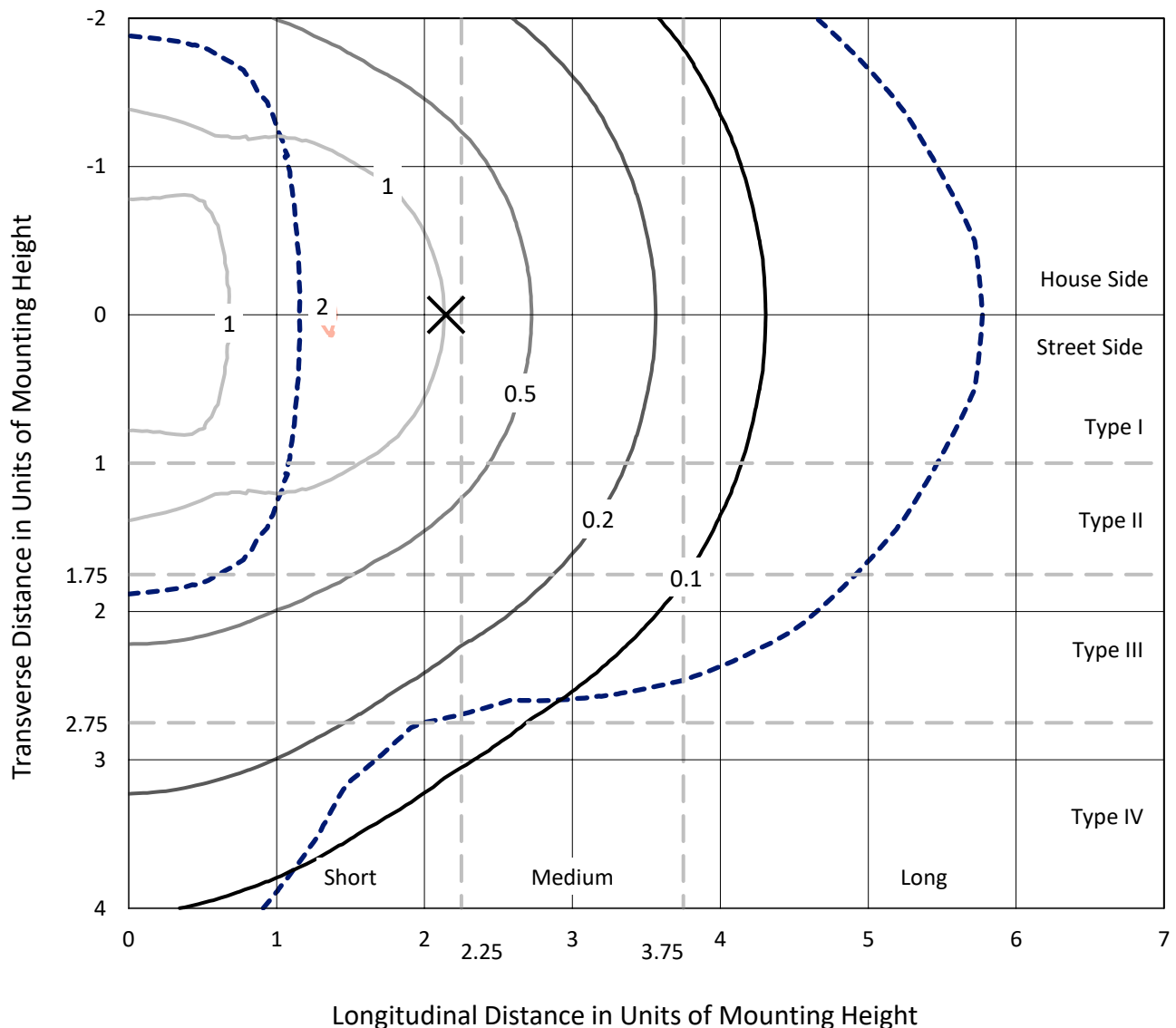
Lumens per Lamp: N/A
Luminaire Lumens: 6781 lumens
Efficiency: N/A
Efficacy: 92.9 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 73
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

REPORT NUMBER: P821161
 CATALOG NUMBER: TT-D5-830-24VDC-RW-PM

Iso-Footcandle Lines of Horizontal Illumination

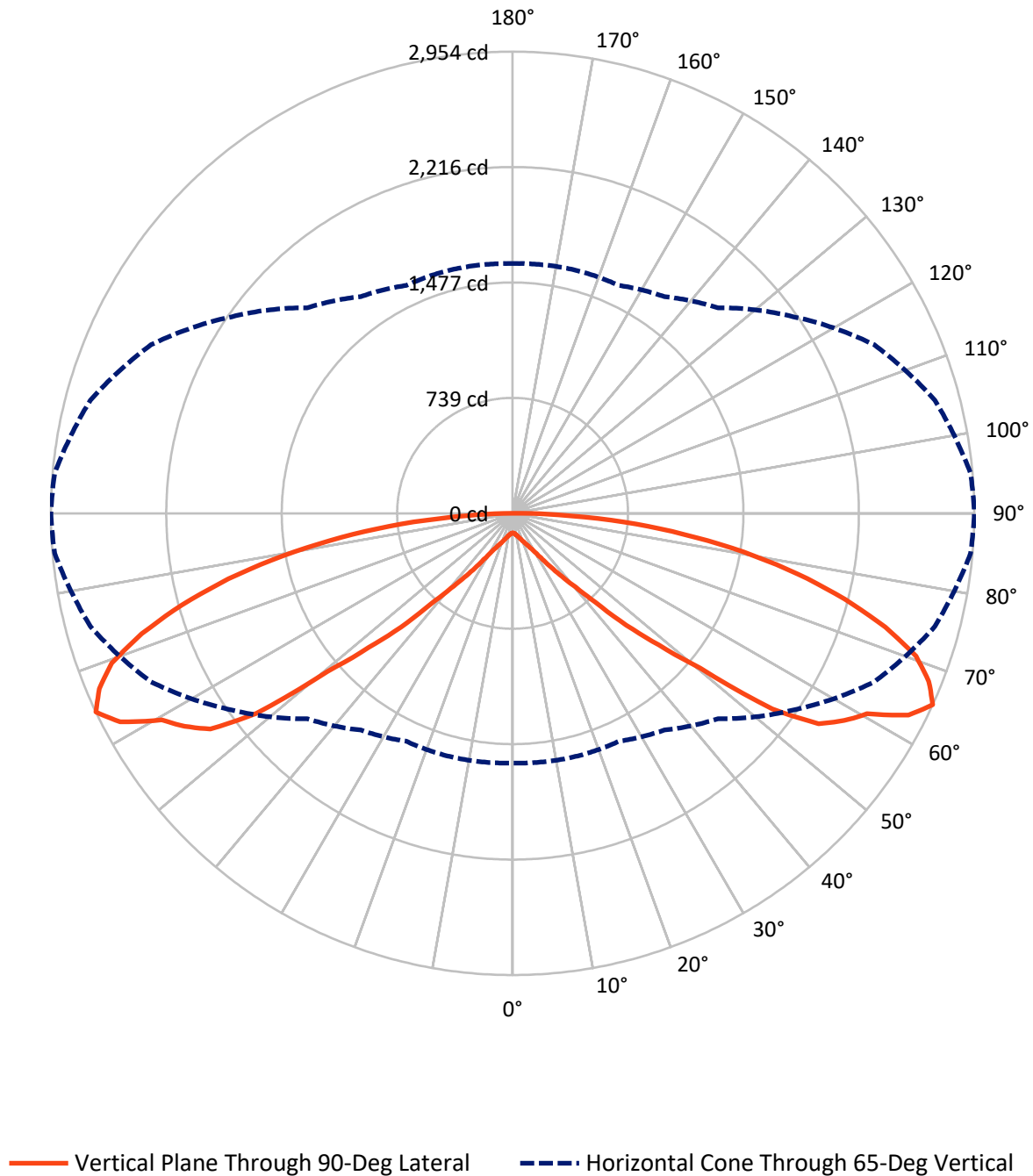
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 2 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



REPORT NUMBER: P821161

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM

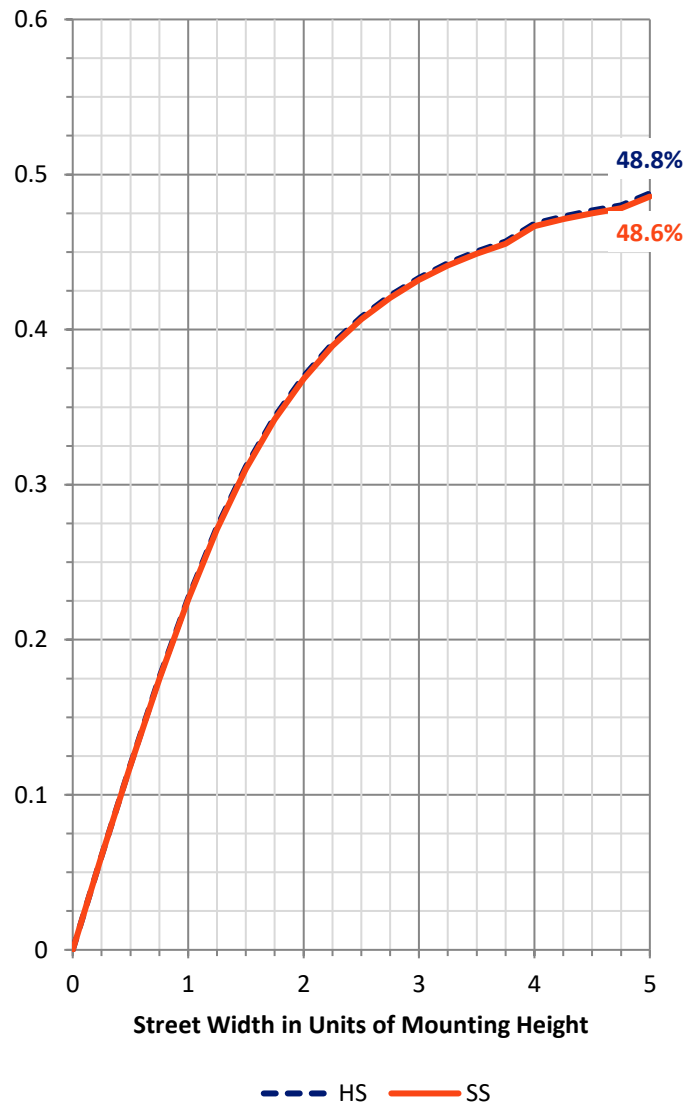
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3390.5	0.0	3390.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3390.5	0.0	3390.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	6781.0	0.0	6781.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.9	0.2
10°-20°	48.4	0.7
20°-30°	111.7	1.6
30°-40°	252.6	3.7
40°-50°	615.4	9.1
50°-60°	1383.9	20.4
60°-70°	2022.6	29.8
70°-80°	1762.4	26.0
80°-90°	570.9	8.4
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°	6781.0	100.0
0°-180°	6781.0	100.0



REPORT NUMBER: P821161

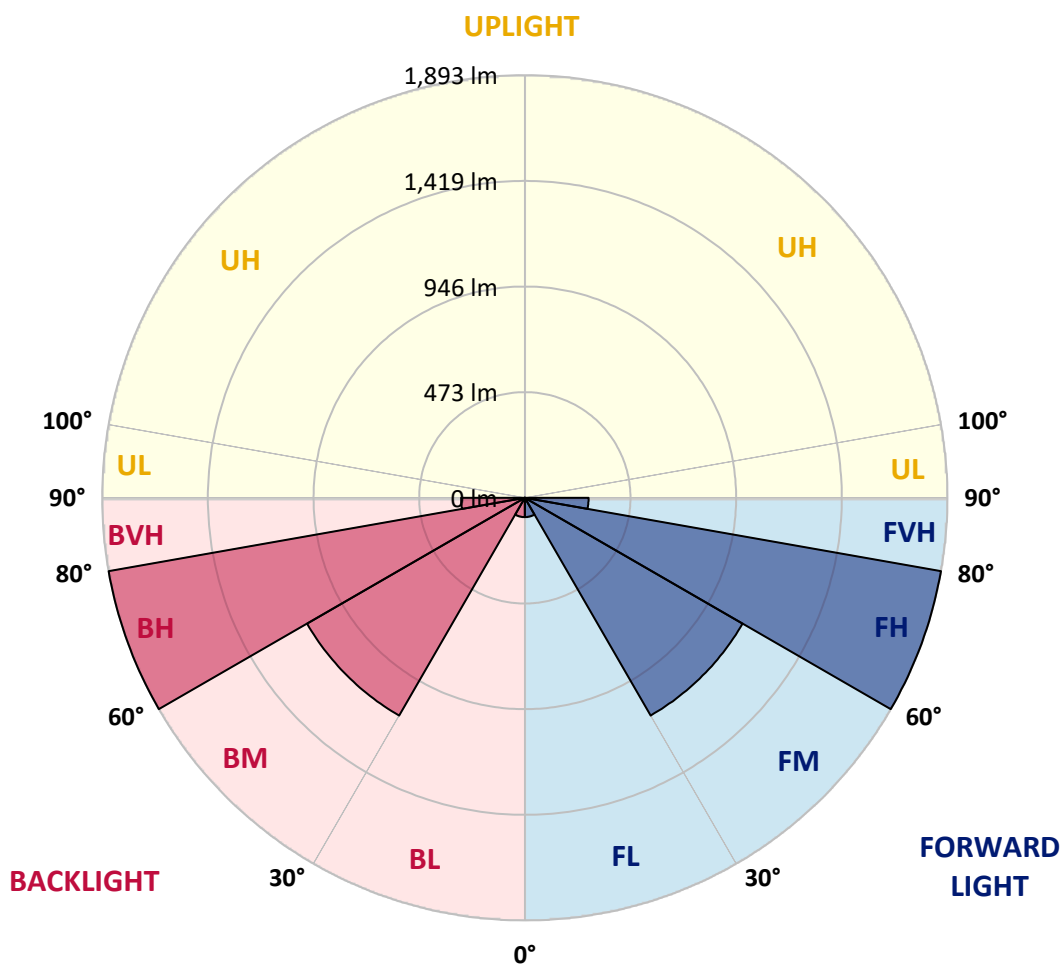
CATALOG NUMBER: TT-D5-830-24VDC-RW-PM

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	86.5	1.3			
FM	(30°-60°)	1126.0	16.6			
FH	(60°-80°)	1892.5	27.9			G2/5000
FVH	(80°-90°)	285.4	4.2			G3/500
BL	(0°-30°)	86.5	1.3	B0/110		
BM	(30°-60°)	1126.0	16.6	B2/2500		
BH	(60°-80°)	1892.5	27.9	B3/2500		G3/2500
BVH	(80°-90°)	285.4	4.2			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type IV Short



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CATALOG NUMBER: TT-D5-830-24VDC-RW-PM

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	123.9	123.9	123.9	123.9	123.9	123.9	123.9	123.9	123.9	123.9	123.9
2.5°	125.5	125.5	127.1	127.1	127.1	127.1	127.1	127.1	127.1	127.1	127.1
5°	130.3	130.3	130.3	130.3	131.9	131.9	130.3	130.3	130.3	130.3	130.3
7.5°	138.4	136.8	138.4	138.4	138.4	136.8	136.8	136.8	135.2	135.2	135.2
10°	146.4	146.4	148.0	146.4	146.4	144.8	144.8	144.8	143.2	143.2	143.2
12.5°	157.7	157.7	157.7	157.7	156.1	156.1	154.5	152.9	151.2	151.2	151.2
15°	172.2	170.5	170.5	168.9	167.3	165.7	164.1	164.1	162.5	162.5	162.5
17.5°	186.6	186.6	185.0	183.4	180.2	178.6	178.6	177.0	175.4	175.4	175.4
20°	204.3	204.3	202.7	199.5	196.3	194.7	193.1	193.1	191.5	191.5	191.5
22.5°	225.3	223.6	220.4	217.2	214.0	212.4	210.8	209.2	209.2	209.2	209.2
25°	247.8	246.2	244.6	239.7	234.9	233.3	230.1	230.1	228.5	230.1	230.1
27.5°	275.1	273.5	270.3	265.5	259.0	255.8	254.2	254.2	255.8	255.8	257.4
30°	308.9	305.7	302.5	296.0	289.6	284.8	284.8	286.4	291.2	294.4	294.4
32.5°	349.1	347.5	342.7	336.3	325.0	321.8	325.0	334.7	341.1	345.9	349.1
35°	395.8	394.2	387.8	376.5	368.5	366.8	376.5	392.6	413.5	419.9	423.2
37.5°	447.3	448.9	440.9	428.0	419.9	423.2	442.5	473.0	494.0	508.4	511.6
40°	511.6	514.9	505.2	490.7	482.7	495.6	526.1	561.5	598.5	616.2	621.1
42.5°	587.3	592.1	579.2	564.7	559.9	580.8	624.3	682.2	748.2	769.1	777.1
45°	680.6	683.8	667.7	654.8	651.6	688.6	762.6	859.2	963.8	1012.0	1020.1
47.5°	791.6	790.0	775.5	759.4	762.6	815.7	926.8	1057.1	1168.1	1242.1	1258.2
50°	918.7	910.7	899.4	880.1	901.0	978.2	1118.2	1275.9	1462.5	1528.5	1557.5
52.5°	1045.8	1031.3	1021.7	1008.8	1045.8	1145.6	1341.9	1617.0	1898.6	2049.8	2080.4
55°	1160.1	1148.8	1144.0	1145.6	1203.5	1346.7	1604.1	1956.5	2228.4	2353.9	2376.4
57.5°	1272.7	1266.3	1261.4	1271.1	1362.8	1549.4	1839.0	2168.9	2392.5	2485.8	2501.9
60°	1378.9	1385.3	1382.1	1411.1	1522.1	1710.3	1961.3	2286.3	2501.9	2587.2	2604.9
62.5°	1496.3	1501.2	1501.2	1533.3	1623.4	1789.2	2045.0	2424.7	2698.2	2823.7	2843.0
65°	1597.7	1600.9	1607.4	1609.0	1692.6	1858.3	2193.0	2551.8	2796.4	2941.2	2954.0
67.5°	1673.3	1676.5	1668.5	1660.4	1724.8	1874.4	2181.7	2535.7	2752.9	2862.3	2872.0
70°	1734.5	1720.0	1697.5	1657.2	1678.1	1790.8	2088.4	2407.0	2625.8	2724.0	2738.4
72.5°	1742.5	1729.6	1658.8	1568.7	1543.0	1641.1	1924.3	2210.7	2399.0	2492.3	2493.9
75°	1694.2	1660.4	1543.0	1407.8	1359.6	1452.9	1695.8	1956.5	2107.7	2186.6	2194.6
77.5°	1531.7	1499.5	1351.5	1197.1	1142.4	1222.8	1428.8	1639.5	1784.3	1861.6	1866.4
80°	1243.7	1232.5	1097.3	955.7	889.8	936.4	1116.6	1282.3	1399.8	1491.5	1499.5
82.5°	917.1	907.5	804.5	680.6	627.5	666.1	794.8	917.1	1026.5	1100.5	1105.4
85°	572.8	553.5	489.1	402.2	366.8	392.6	477.9	559.9	658.1	716.0	719.2
87.5°	191.5	183.4	157.7	130.3	109.4	114.2	140.0	170.5	249.4	275.1	291.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

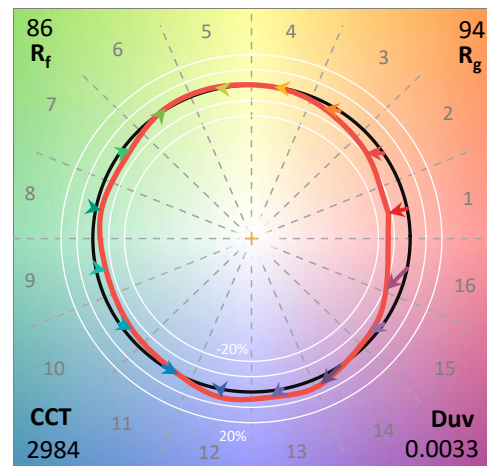
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-7
 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-30-830-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 2984
 CIE u' : 0.2500
 CIE v' : 0.5264
 Duv: 0.0033
 CIE x: 0.4431
 CIE y: 0.4147
 CIE z: 0.1422
 Peak Wavelength (nm): 601
 Dominant Wavelength (nm): 581
 Purity: 57.4798
 R_f: 85.8
 R_g: 94.1

CRI (Ra): 81.8
 R1: 79.4
 R2: 89.9
 R3: 96.6
 R4: 80.6
 R5: 80.1
 R6: 88.9
 R7: 82.6
 R8: 56.0
 R9: -1.1
 R10: 78.4
 R11: 80.8
 R12: 72.8
 R13: 81.7
 R14: 98.5
 R15: 70.2



Test Conditions

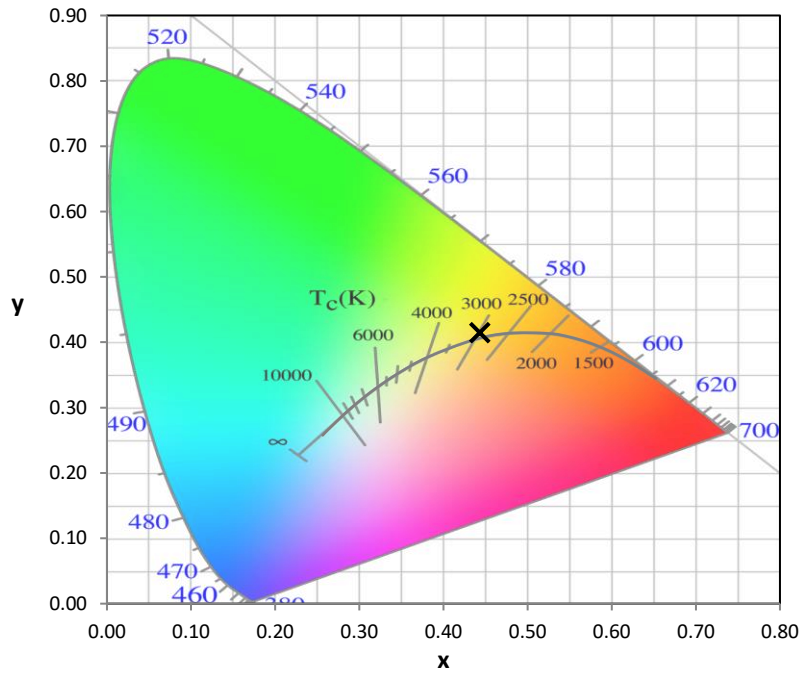
Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-7

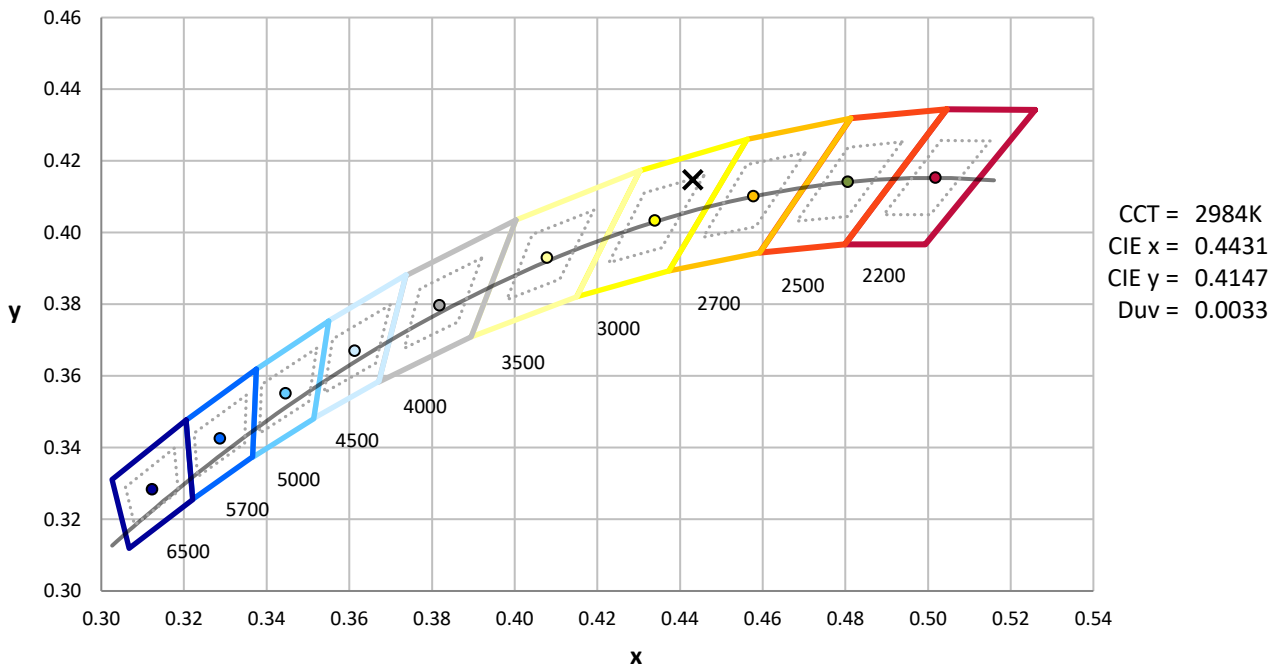
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



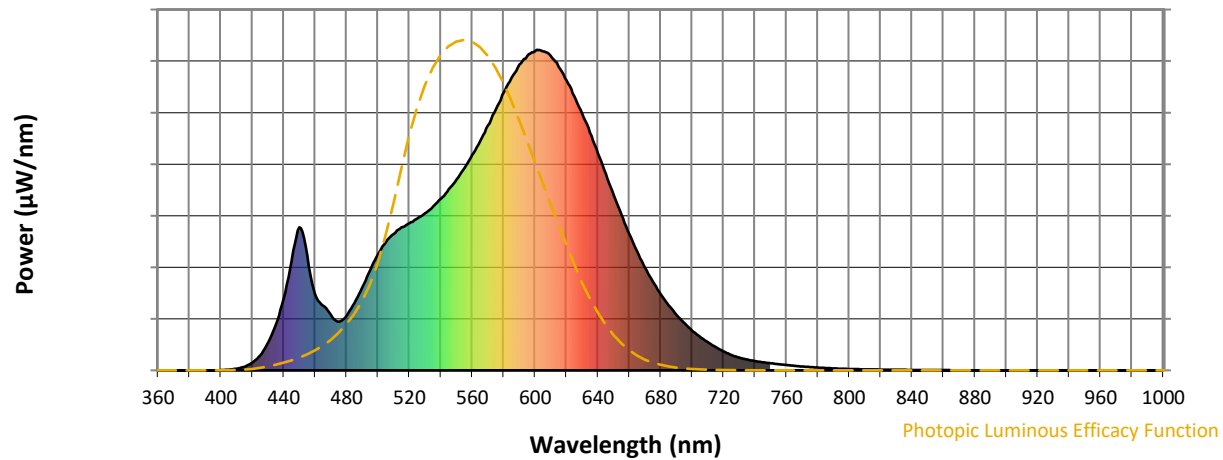
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

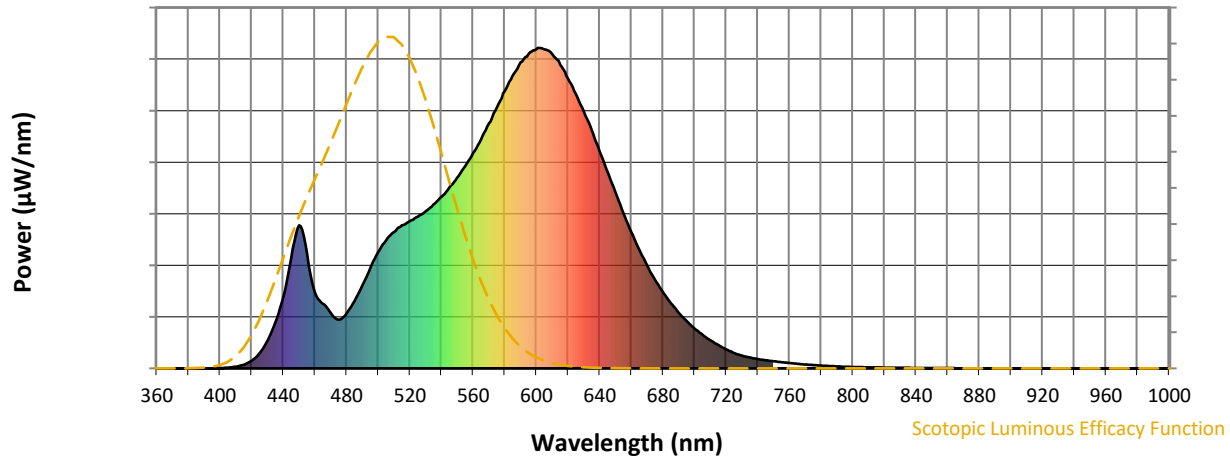


Photopic Lumens: NR

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



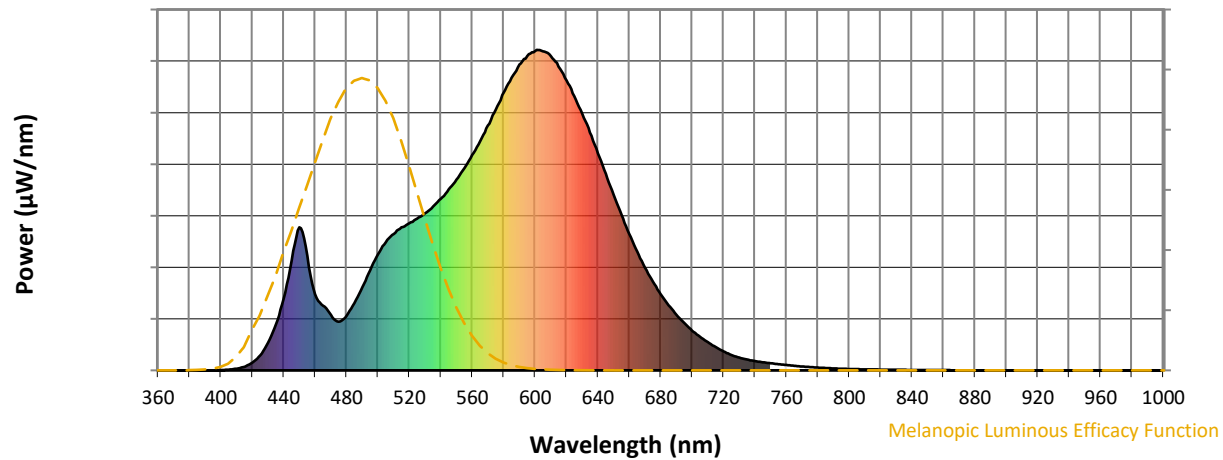
Scotopic Lumens: NR

S/P: 1.32

λ (nm)	Power W ^Λ /nm	Lumens (Φ/nm)	λ (nm)	Power W ^Λ /nm	Lumens (Φ/nm)	λ (nm)	Power W ^Λ /nm	Lumens (Φ/nm)	λ (nm)	Power W ^Λ /nm	Lumens (Φ/nm)	λ (nm)	Power W ^Λ /nm	Lumens (Φ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.51

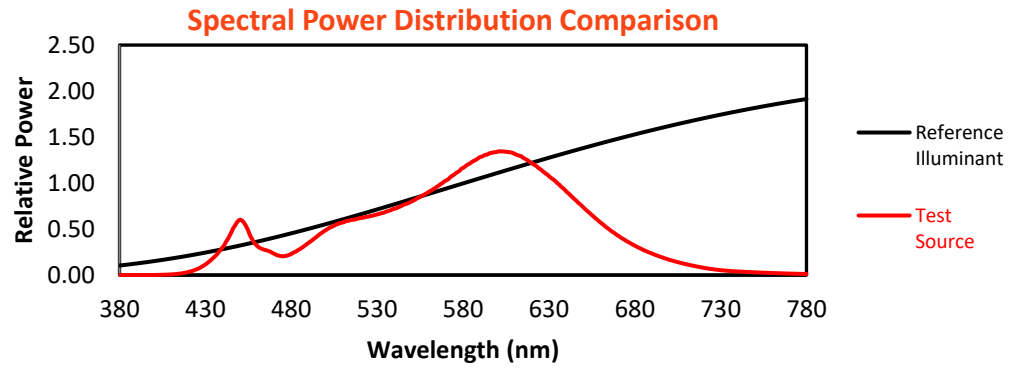
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

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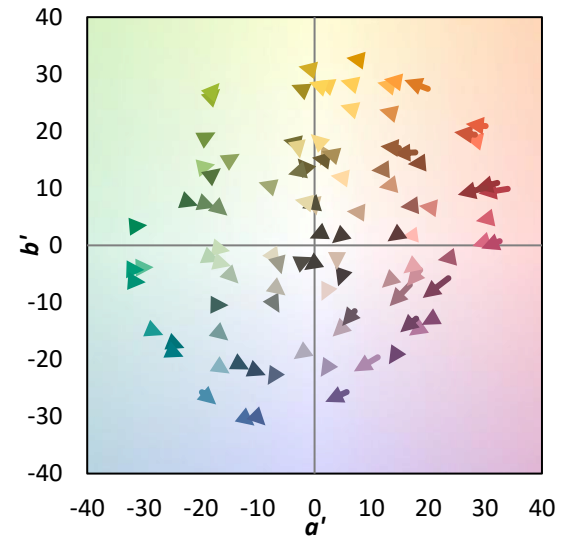
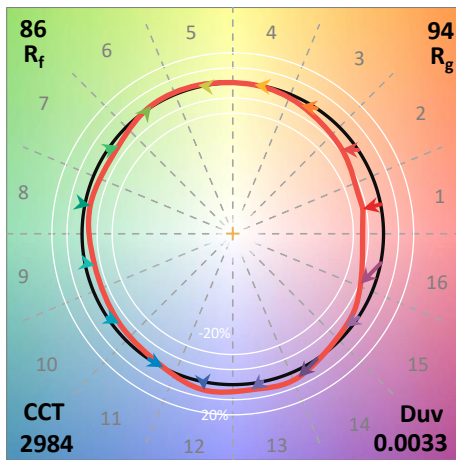
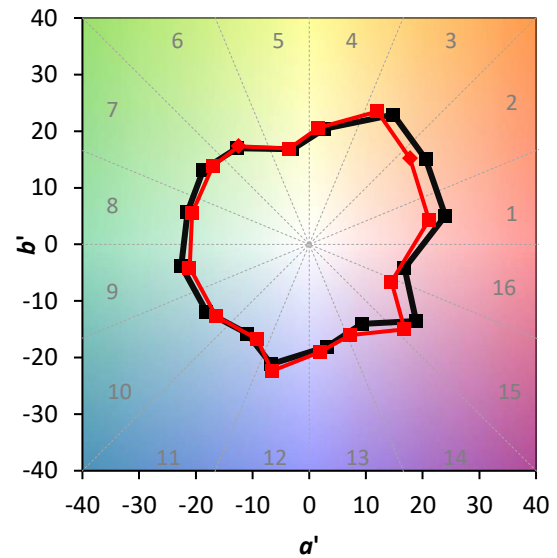
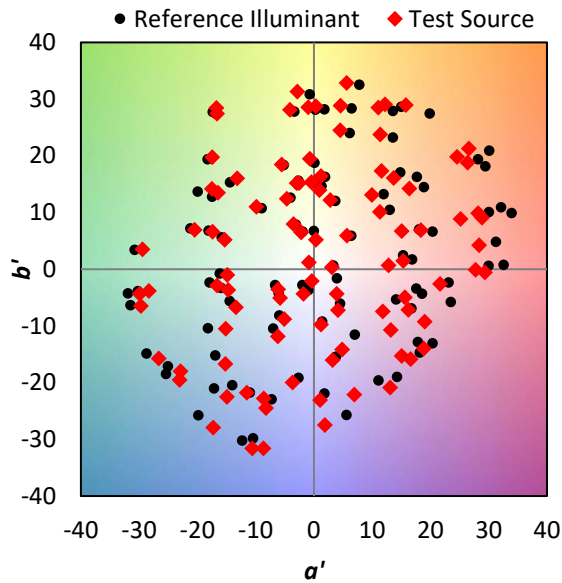
TM-30-18

Summary

$R_f = 85.8$
 $R_g = 94.1$
 $CIE R_a = 81.8$
 $R_g = -1.1$

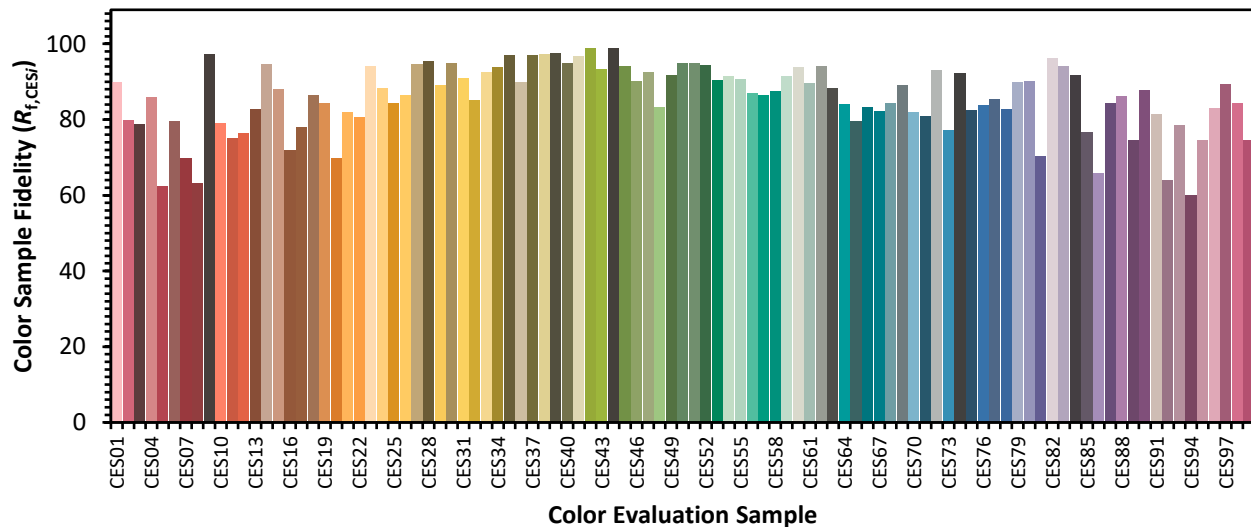


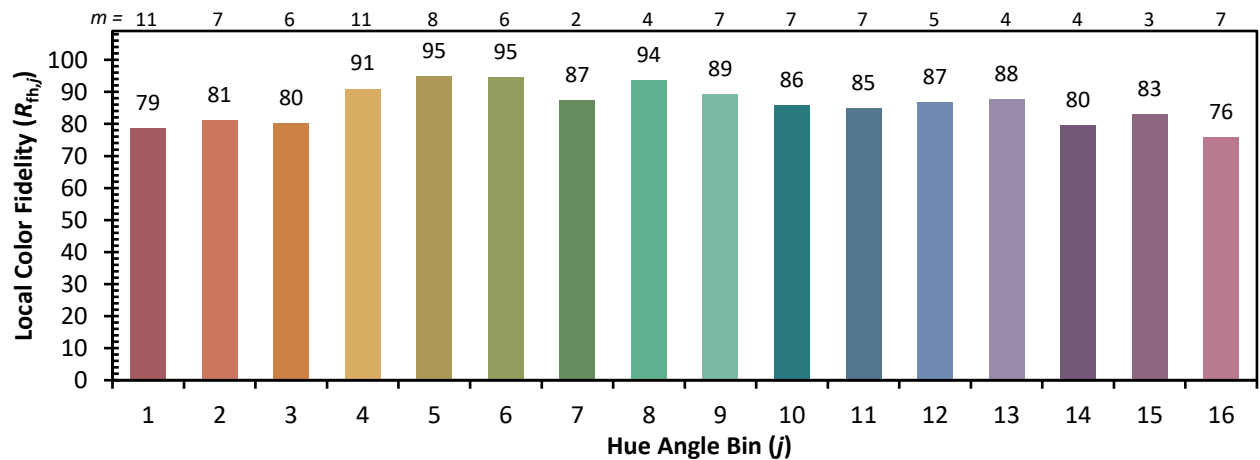
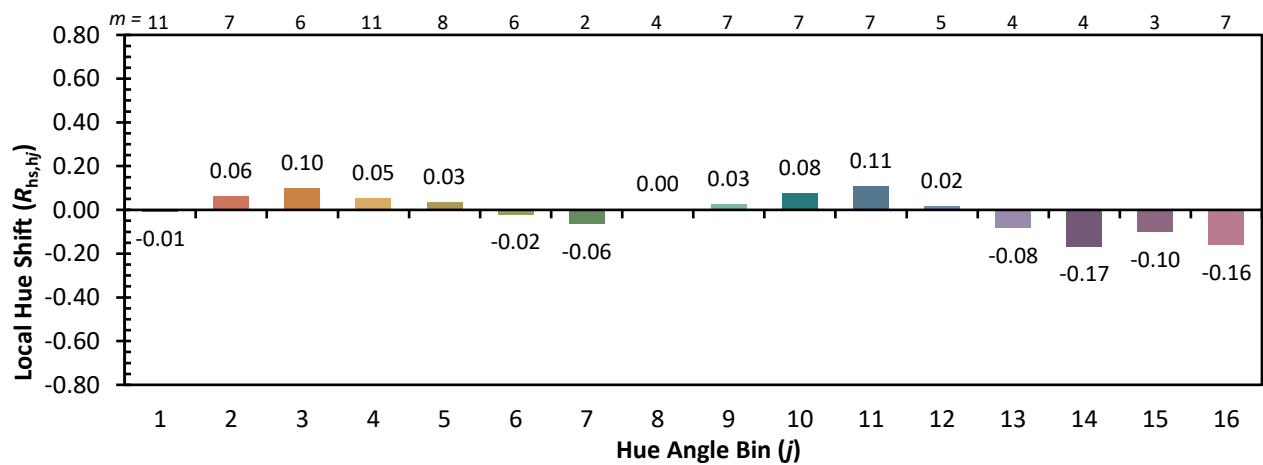
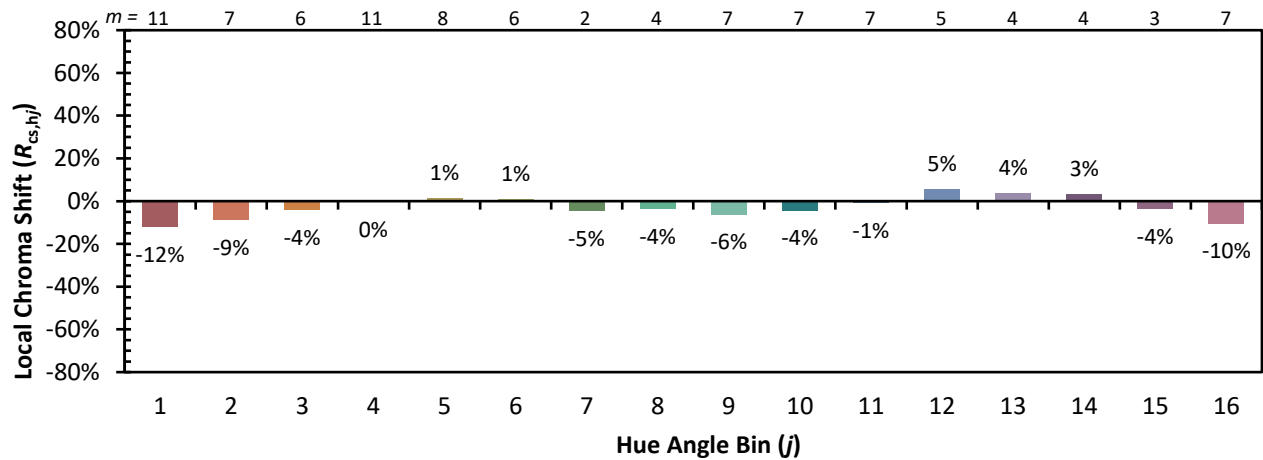
Color Vector Graphics



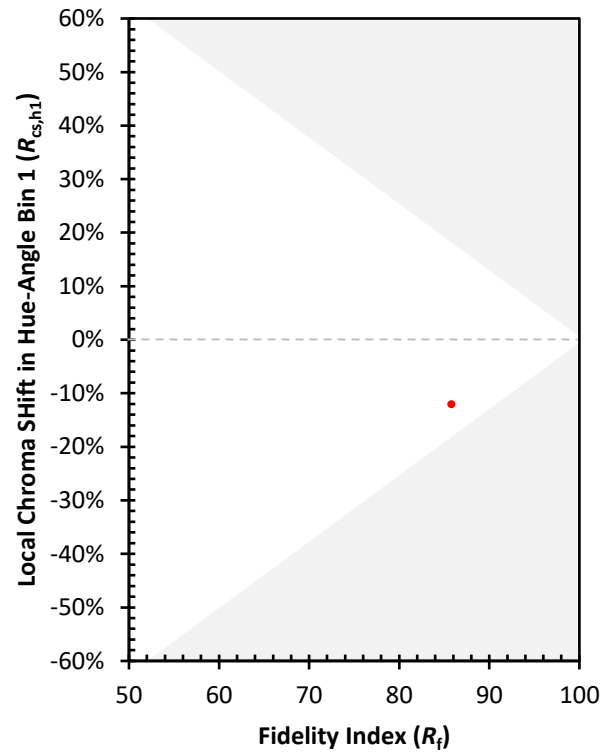
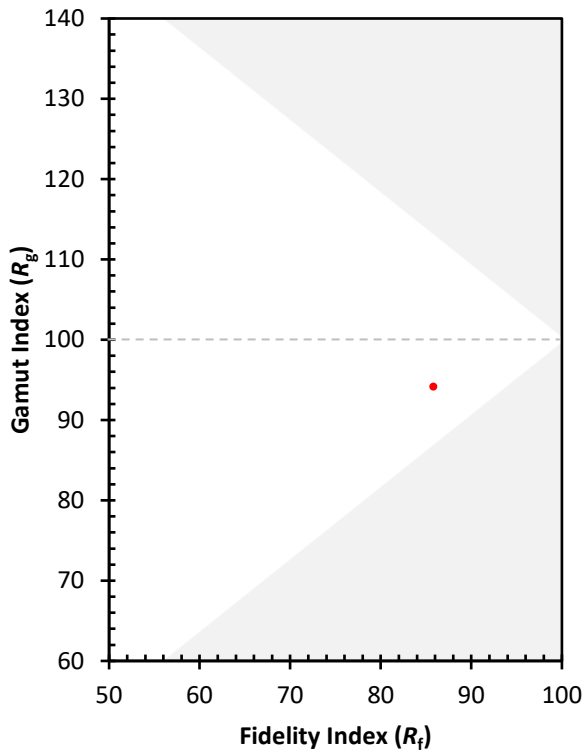
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 93	CES58 = 87	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 94	CES85 = 77
CES11 = 59	CES36 = 90	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 97	CES62 = 94	CES87 = 84
CES13 = 43	CES38 = 97	CES63 = 88	CES88 = 86
CES14 = 74	CES39 = 98	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 80	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 83	CES91 = 81
CES17 = 50	CES42 = 99	CES67 = 82	CES92 = 64
CES18 = 56	CES43 = 93	CES68 = 84	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 60
CES20 = 67	CES45 = 94	CES70 = 82	CES95 = 74
CES21 = 87	CES46 = 90	CES71 = 81	CES96 = 83
CES22 = 79	CES47 = 93	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 84
CES24 = 91	CES49 = 92	CES74 = 92	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 83	



Color Rendition by Hue-Angle Bin


Measure Comparisons



(END OF REPORT)