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: P821247

Luminaire Tested: **TT-D4-735-24VDC-WQ**

Issue Date: 5/19/2020

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:	P821247
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-14)
Test Lab:	INNOVATION CENTER
Issue Date:	5/19/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D4-735-24VDC-WQ
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3500K, 70 CRI LEDS AND WIDE DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	7154 lumens
Efficiency:	N/A
Efficacy:	125.5 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G2

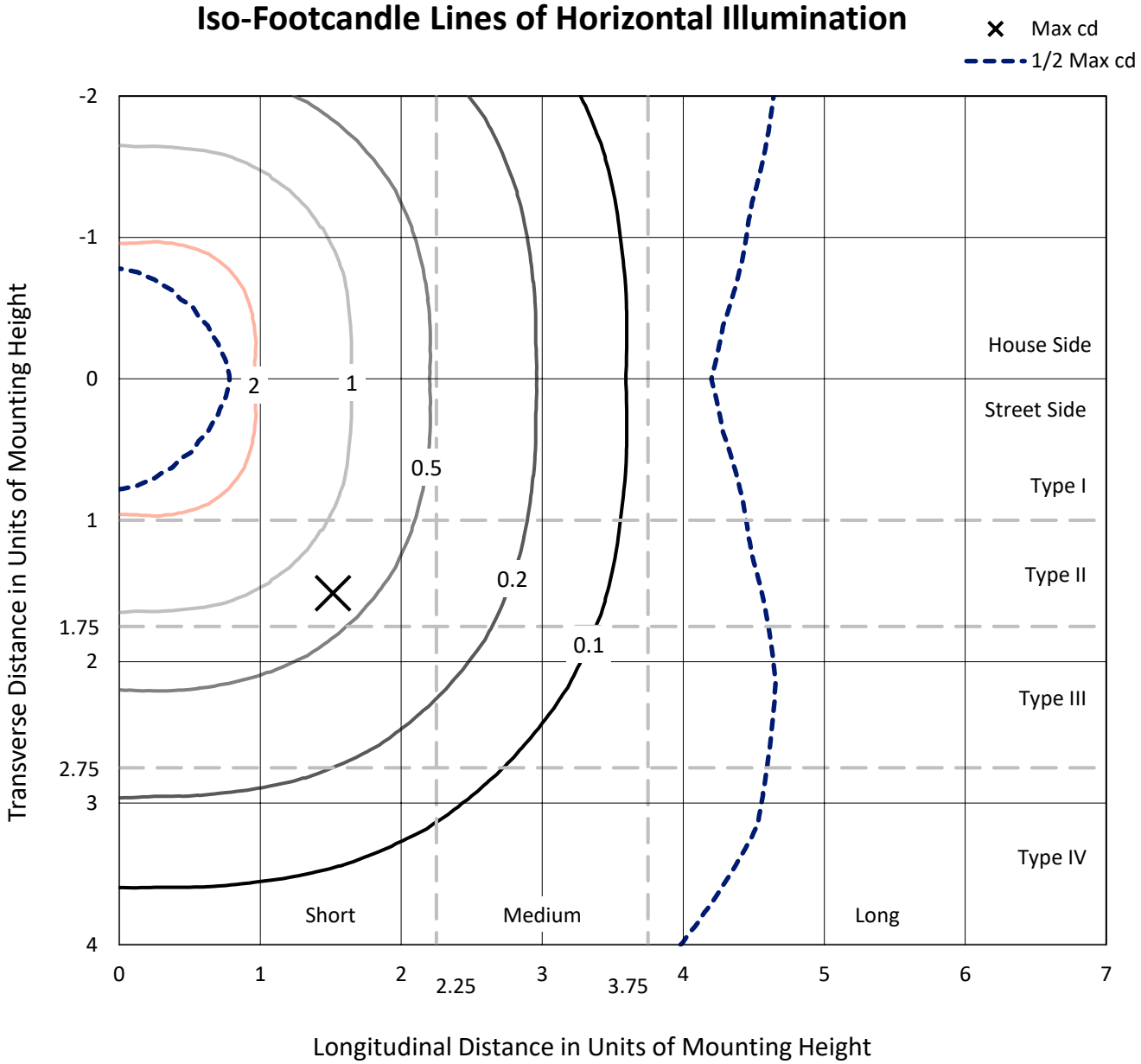
Input Watts (W):	57
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Scaled Data Report

REPORT NUMBER: P821247
CATALOG NUMBER: TT-D4-735-24VDC-WQ

Iso-Footcandle Lines of Horizontal Illumination



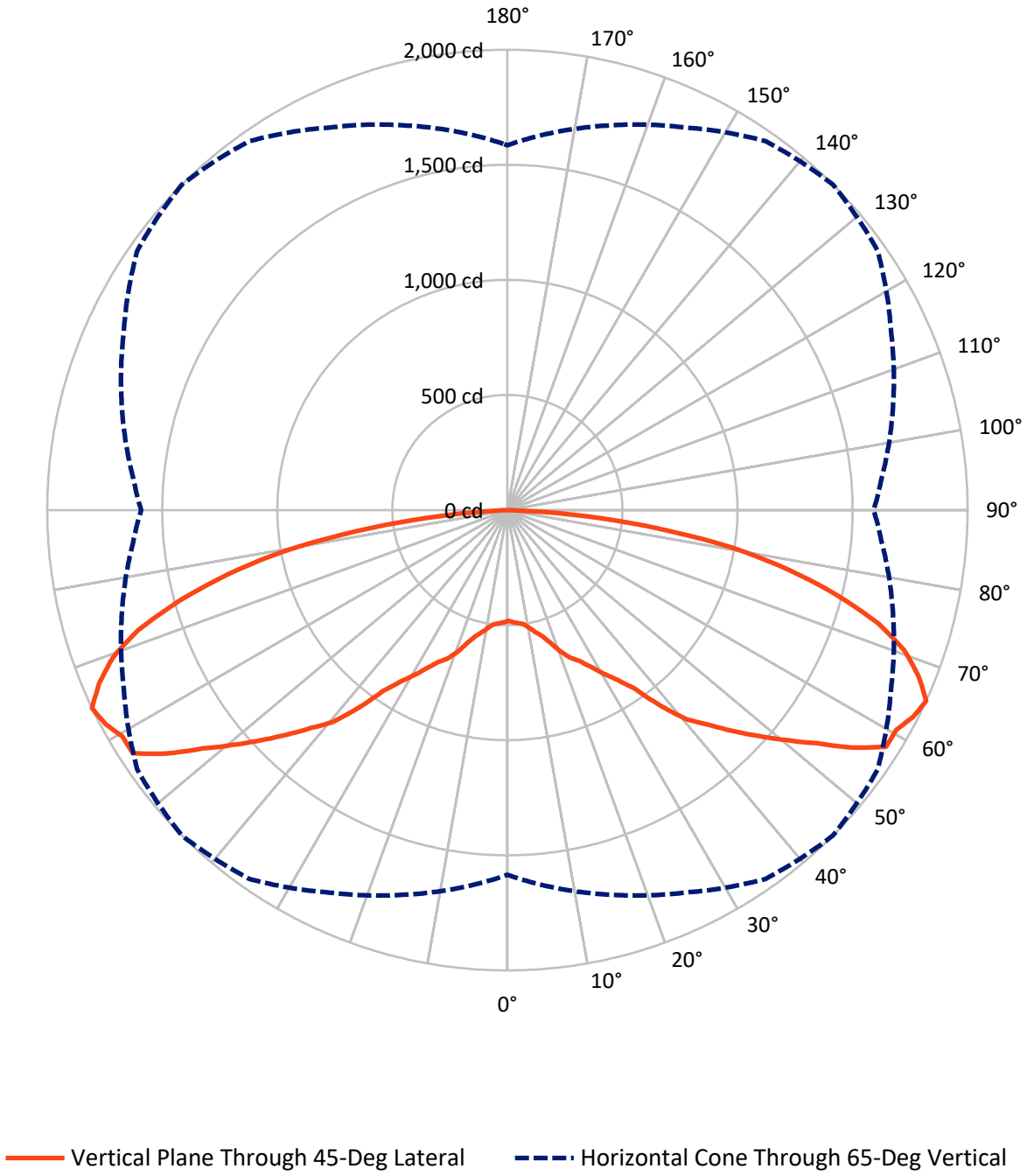
Based on 15 foot mounting height. Maximum calculated value = 2.4 fc
Type V - Short - N/A

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Scaled Data Report

REPORT NUMBER: P821247
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Luminous Intensity Polar Plot



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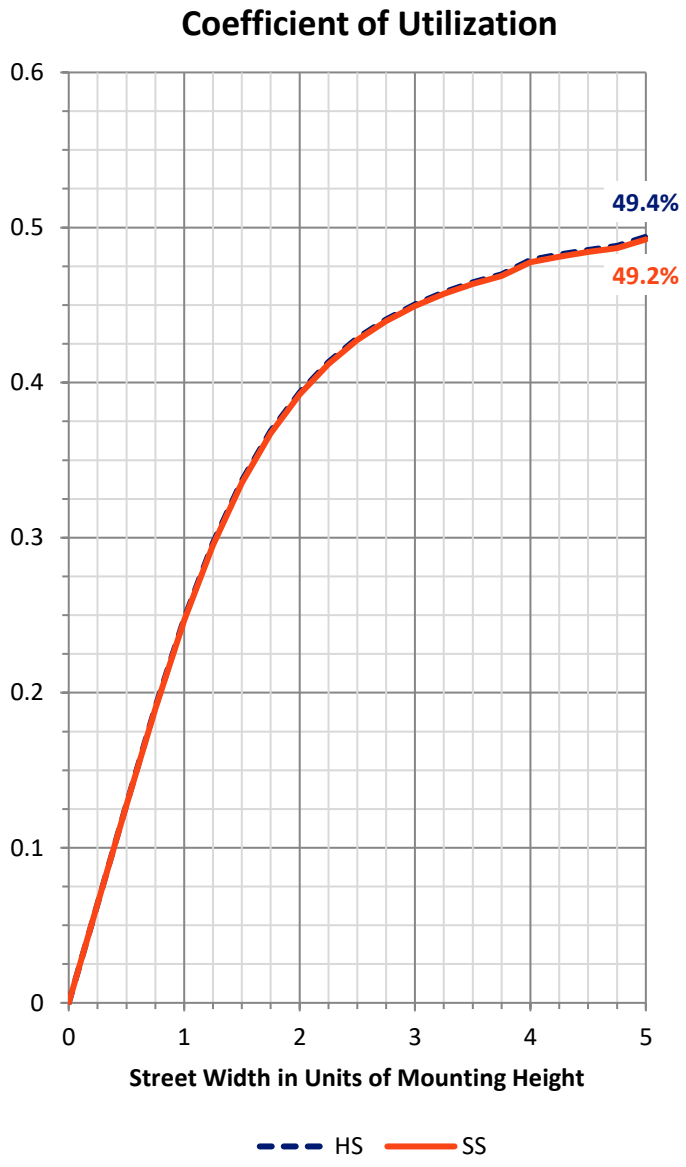
REPORT NUMBER: P821247
CATALOG NUMBER: TT-D4-735-24VDC-WQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3577.0	0.0	3577.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3577.0	0.0	3577.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	7154.0	0.0	7154.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.0	0.7
10°-20°	165.1	2.3
20°-30°	339.1	4.7
30°-40°	602.4	8.4
40°-50°	1015.5	14.2
50°-60°	1498.0	20.9
60°-70°	1758.1	24.6
70°-80°	1369.7	19.1
80°-90°	358.1	5.0
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°	7154.0	100.0
0°-180°	7154.0	100.0



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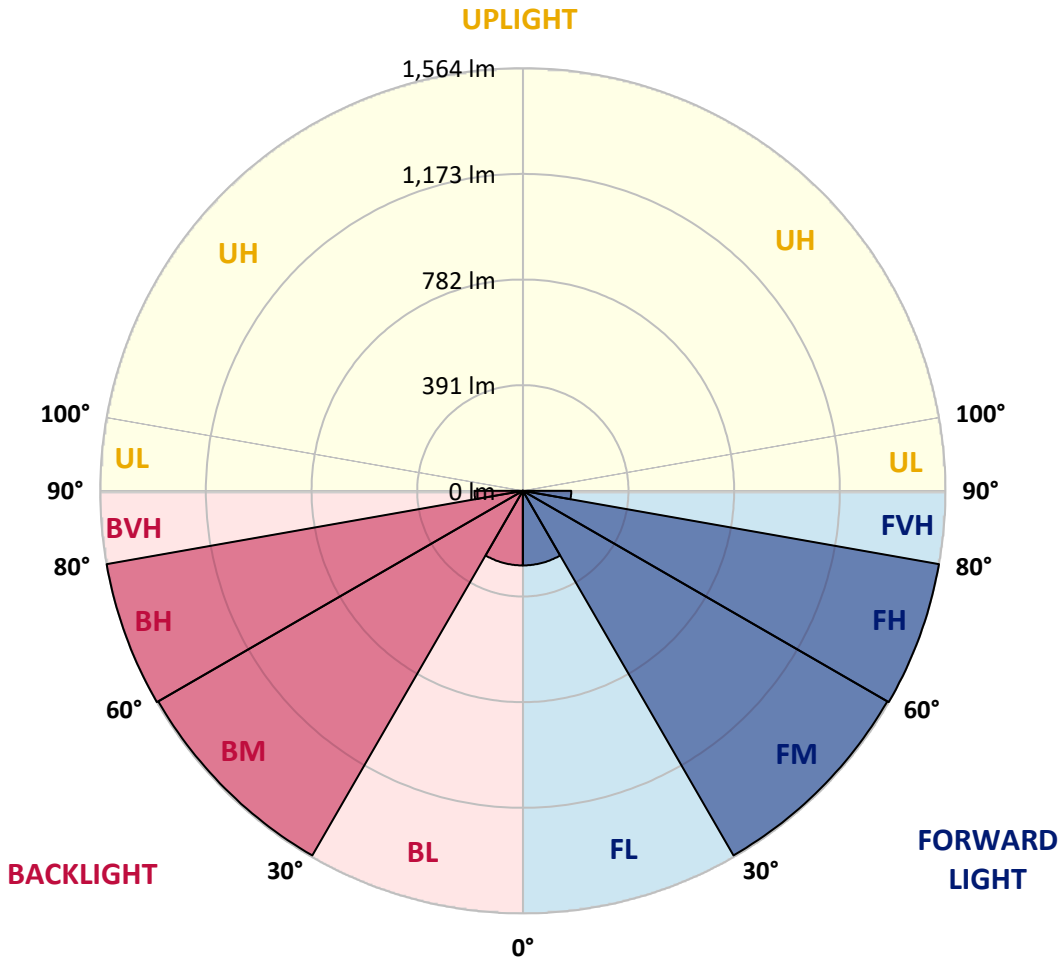
Scaled Data Report

REPORT NUMBER: P821247
CATALOG NUMBER: TT-D4-735-24VDC-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	276.1	3.9			
FM	(30°-60°)	1558.0	21.8			
FH	(60°-80°)	1563.9	21.9			G1/1800
FVH	(80°-90°)	179.0	2.5			G2/225
BL	(0°-30°)	276.1	3.9	B1/500		
BM	(30°-60°)	1558.0	21.8	B2/2500		
BH	(60°-80°)	1563.9	21.9	B3/2500		G1/1800
BVH	(80°-90°)	179.0	2.5			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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Scaled Data Report

REPORT NUMBER: P821247
CATALOG NUMBER: TT-D4-735-24VDC-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	481.5	481.5	481.5	481.5	481.5	481.5	481.5	481.5	481.5	481.5	481.5
2.5°	489.4	489.4	489.4	488.2	488.2	488.2	488.2	489.4	489.4	489.4	489.4
5°	500.6	500.6	498.4	496.1	493.9	493.9	495.0	496.1	497.2	499.5	499.5
7.5°	507.4	507.4	506.2	504.0	500.6	500.6	501.7	504.0	505.1	505.1	504.0
10°	516.4	517.5	520.9	522.0	519.7	519.7	520.9	522.0	519.7	516.4	516.4
12.5°	537.7	538.9	543.4	546.7	546.7	544.5	545.6	547.9	542.2	536.6	537.7
15°	568.1	568.1	569.2	572.6	570.4	568.1	570.4	571.5	568.1	567.0	569.2
17.5°	608.6	608.6	601.9	607.5	608.6	607.5	609.7	604.1	600.7	605.2	607.5
20°	652.5	648.0	644.6	649.1	658.1	654.7	659.2	646.9	643.5	645.7	646.9
22.5°	680.6	684.0	686.2	688.5	700.9	696.4	700.9	687.4	685.1	680.6	677.2
25°	714.4	717.7	731.2	724.5	732.4	725.6	731.2	723.4	727.9	714.4	714.4
27.5°	752.6	759.4	767.2	763.9	774.0	770.6	774.0	762.7	763.9	758.2	756.0
30°	804.4	804.4	802.1	808.9	826.9	824.6	825.7	811.1	801.0	802.1	806.6
32.5°	856.1	849.4	852.7	873.0	884.2	879.7	882.0	875.2	852.7	848.2	851.6
35°	904.5	914.6	922.5	939.3	955.1	952.8	951.7	940.5	925.8	907.8	902.2
37.5°	979.8	991.1	1012.5	1042.8	1071.0	1076.6	1062.0	1047.3	1013.6	987.7	974.2
40°	1078.8	1080.0	1104.7	1163.2	1189.1	1193.6	1185.7	1161.0	1109.2	1080.0	1078.8
42.5°	1165.5	1157.6	1198.1	1247.6	1271.2	1273.5	1267.8	1247.6	1198.1	1156.5	1164.3
45°	1233.0	1233.0	1281.3	1320.7	1359.0	1368.0	1357.8	1315.1	1282.5	1234.1	1230.7
47.5°	1294.8	1311.7	1352.2	1400.6	1454.6	1467.0	1454.6	1404.0	1348.8	1312.8	1293.7
50°	1369.1	1389.3	1418.6	1494.0	1554.7	1571.6	1553.6	1498.5	1418.6	1388.2	1377.0
52.5°	1455.7	1472.6	1518.7	1613.2	1658.2	1683.0	1668.3	1615.5	1521.0	1474.8	1465.8
55°	1559.2	1543.5	1615.5	1706.6	1789.8	1822.4	1793.2	1708.8	1626.7	1543.5	1559.2
57.5°	1612.1	1594.1	1695.3	1781.9	1897.8	1940.6	1904.6	1788.7	1695.3	1599.7	1611.0
60°	1616.6	1624.5	1701.0	1842.7	1922.6	1940.6	1929.3	1852.8	1704.3	1631.2	1609.8
62.5°	1603.1	1651.5	1716.7	1862.9	1934.9	1978.8	1940.6	1865.2	1723.5	1659.3	1604.2
65°	1585.1	1633.5	1730.2	1833.7	1956.3	2000.2	1964.2	1839.3	1734.7	1633.5	1591.8
67.5°	1553.6	1536.7	1656.0	1794.3	1901.2	1927.1	1904.6	1796.6	1654.8	1534.5	1557.0
70°	1453.5	1438.8	1541.2	1693.1	1795.4	1831.4	1804.4	1695.3	1543.5	1442.2	1455.7
72.5°	1305.0	1309.5	1408.5	1553.6	1663.8	1686.3	1671.7	1552.5	1414.1	1315.1	1297.1
75°	1131.7	1143.0	1237.5	1369.1	1469.2	1482.7	1468.1	1374.7	1236.3	1149.7	1126.1
77.5°	930.3	947.2	1023.7	1155.3	1221.7	1252.1	1228.5	1158.7	1029.3	951.7	928.1
80°	721.1	726.7	780.7	886.5	974.2	994.5	972.0	889.8	787.5	729.0	712.1
82.5°	472.5	481.5	529.9	610.9	668.2	662.6	668.2	604.1	535.5	479.2	451.1
85°	210.4	228.4	261.0	299.2	336.4	346.5	336.4	303.7	261.0	223.9	219.4
87.5°	14.6	16.9	20.2	21.4	23.6	18.0	18.0	18.0	15.7	18.0	14.6
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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Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

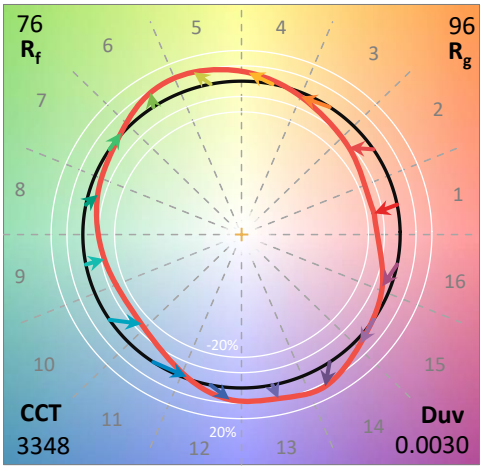
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-4
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-30-735-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	3348
CIE u':	0.2384
CIE v':	0.5184
Duv:	0.0030
CIE x:	0.4177
CIE y:	0.4036
CIE z:	0.1787
Peak Wavelength (nm):	593
Dominant Wavelength (nm):	580
Purity:	46.5223
Rf:	75.8
Rg:	95.8

CRI (Ra):	73.4
R1:	70.8
R2:	79.9
R3:	87.6
R4:	72.6
R5:	69.3
R6:	71.3
R7:	82.1
R8:	53.3
R9:	-19.2
R10:	52.5
R11:	68.0
R12:	42.6
R13:	72.0
R14:	92.6
R15:	63.8



Test Conditions

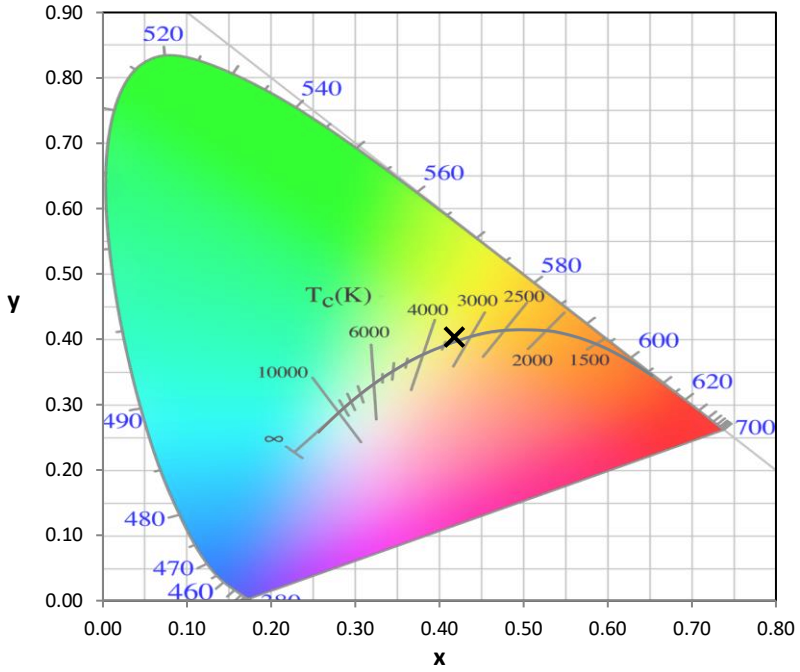
Stabilization Time:	30M
Operation Time:	1H 30M
Sphere Temperature (°C):	25.2

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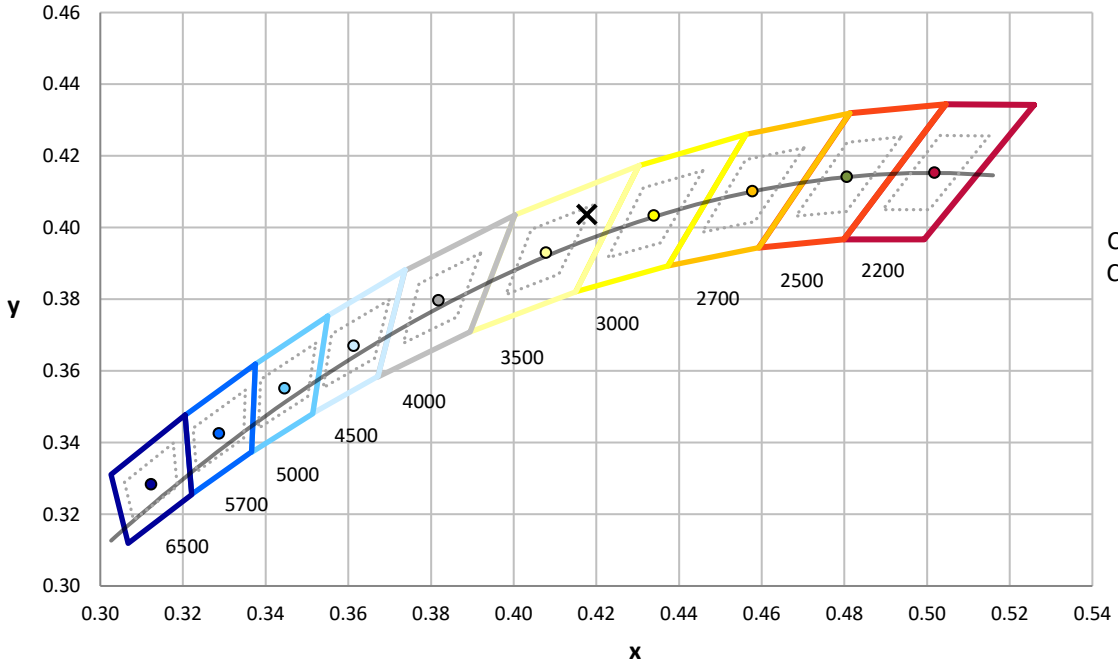
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

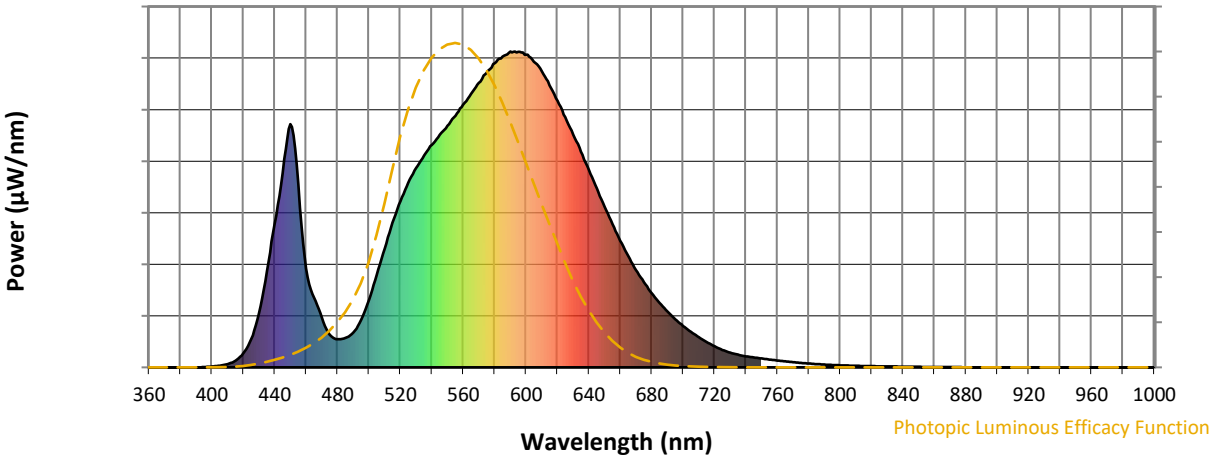


CCT = 3348K
CIE x = 0.4177
CIE y = 0.4036
Duv = 0.0030

Point lies inside the ANSI 3500K 4-step quadrangle

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Photopic Flux vs. Wavelength

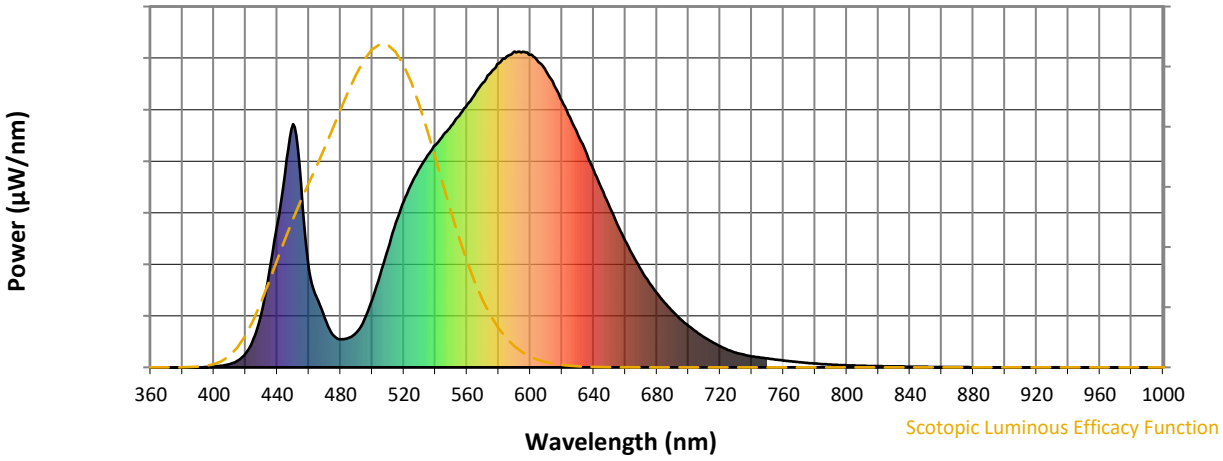


Photopic Lumens: NR

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

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Scotopic Flux vs. Wavelength

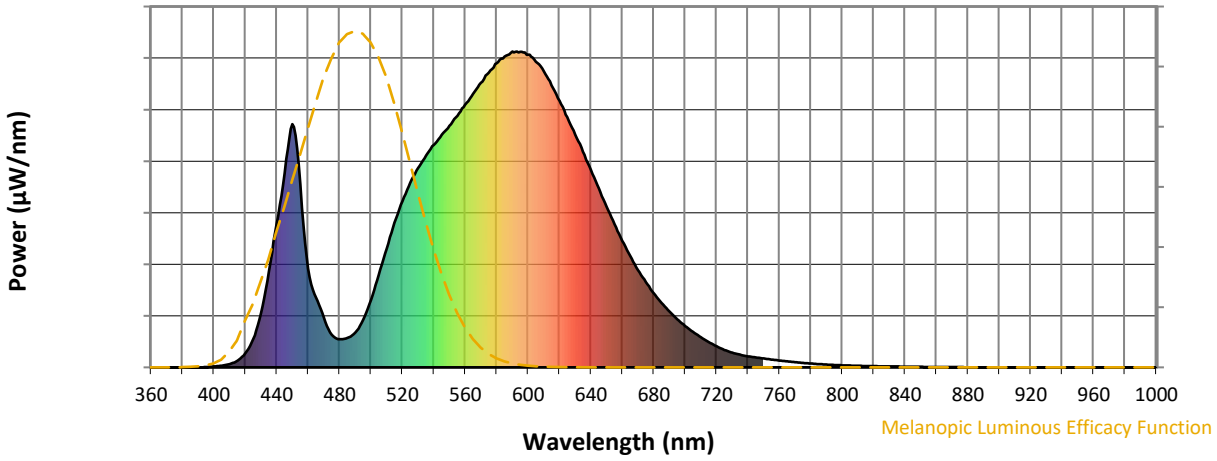


Scotopic Lumens: NR **S/P: 1.31**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.4**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

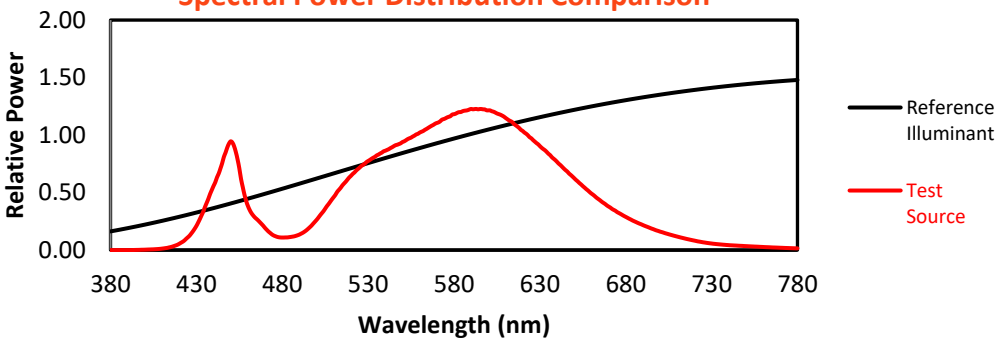
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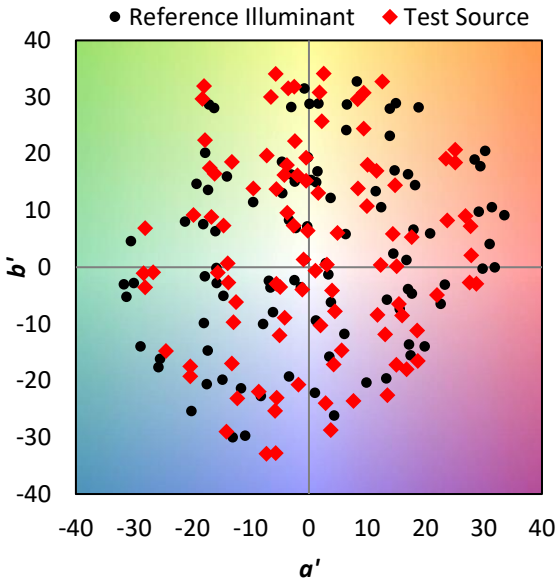
Summary

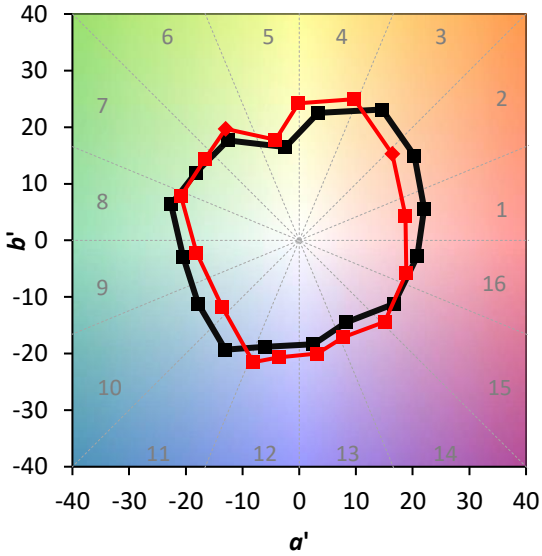
R_f = 75.8
R_g = 95.8
CIE R_a = 73.4
R_9 = -19.2

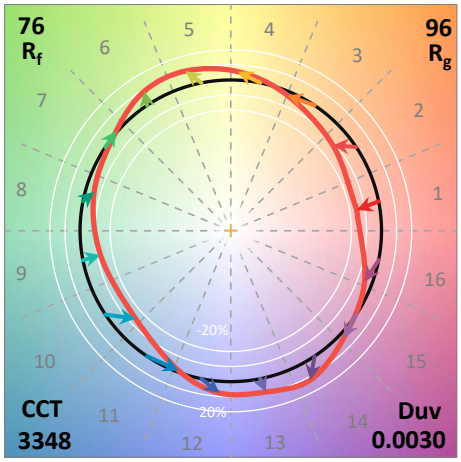
Spectral Power Distribution Comparison

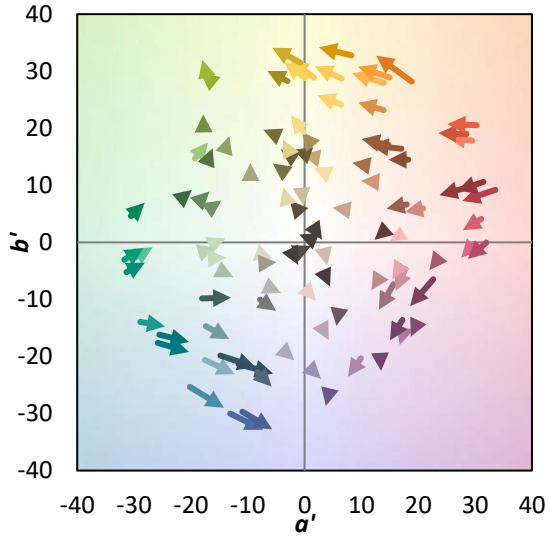


Color Vector Graphics







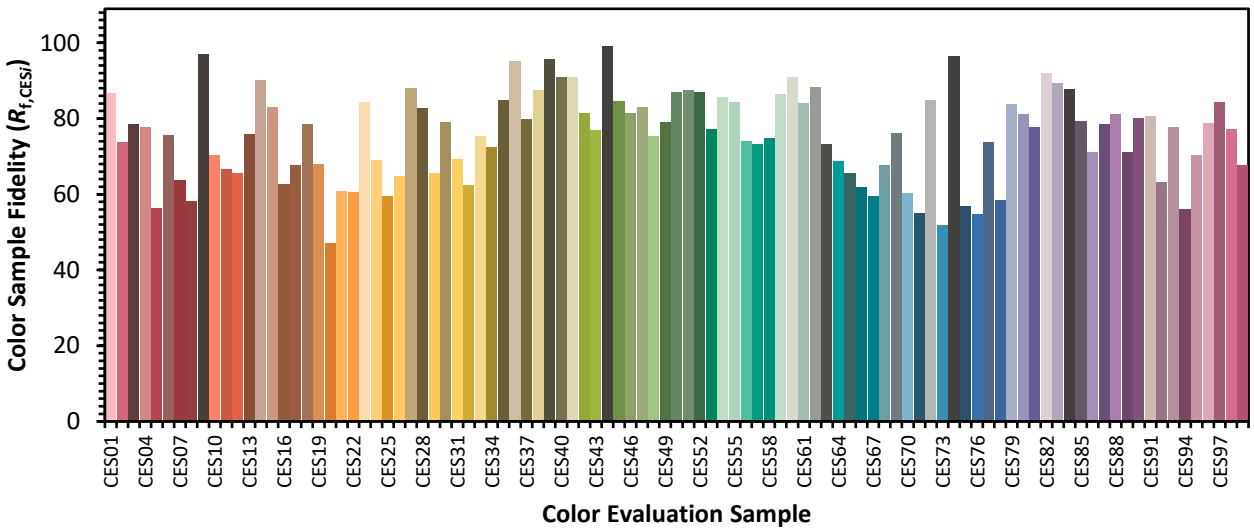


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Individual Sample Fidelity Index ($R_{f,i}$)

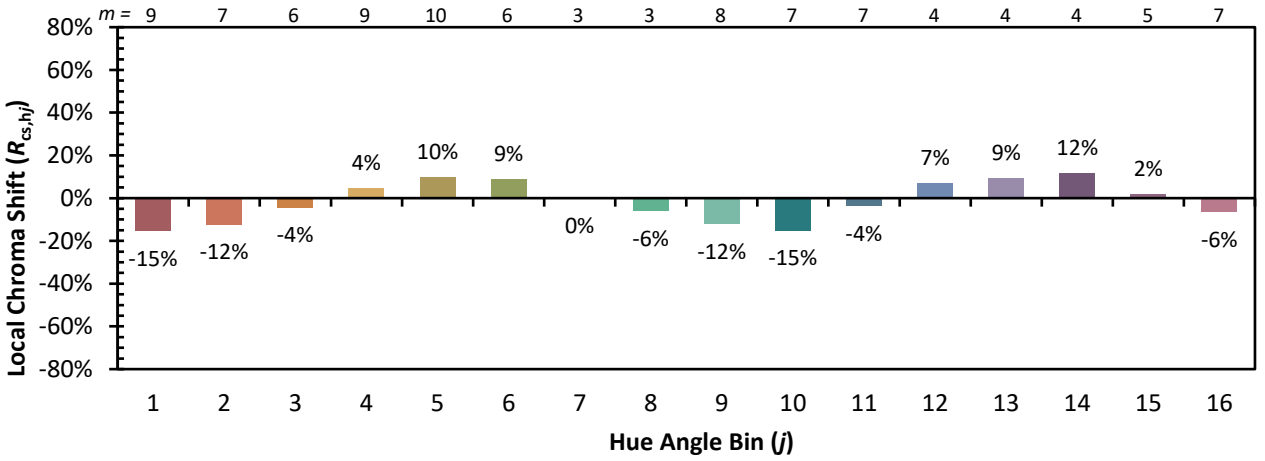
CES01 = 86	CES26 = 65	CES51 = 88	CES76 = 55
CES02 = 62	CES27 = 88	CES52 = 87	CES77 = 74
CES03 = 31	CES28 = 83	CES53 = 77	CES78 = 58
CES04 = 70	CES29 = 66	CES54 = 86	CES79 = 84
CES05 = 48	CES30 = 79	CES55 = 84	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 74	CES81 = 78
CES07 = 41	CES32 = 62	CES57 = 73	CES82 = 92
CES08 = 40	CES33 = 75	CES58 = 75	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 85	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 95	CES61 = 84	CES86 = 71
CES12 = 64	CES37 = 80	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 88	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 71
CES15 = 71	CES40 = 91	CES65 = 66	CES90 = 80
CES16 = 47	CES41 = 91	CES66 = 62	CES91 = 81
CES17 = 50	CES42 = 81	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 77	CES68 = 68	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 85	CES70 = 60	CES95 = 70
CES21 = 87	CES46 = 82	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 83	CES72 = 85	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 77
CES24 = 91	CES49 = 79	CES74 = 96	CES99 = 68
CES25 = 72	CES50 = 87	CES75 = 57	

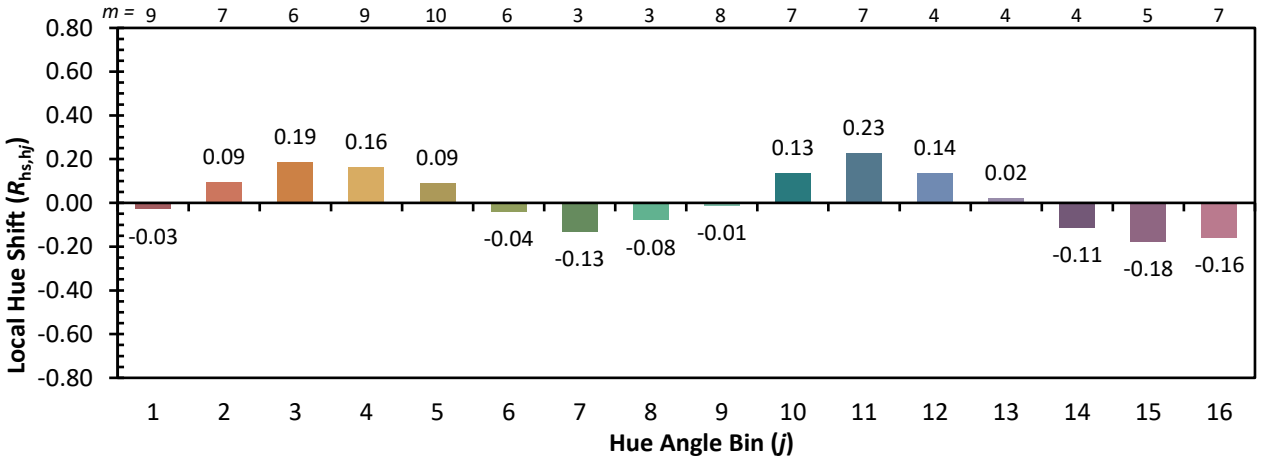


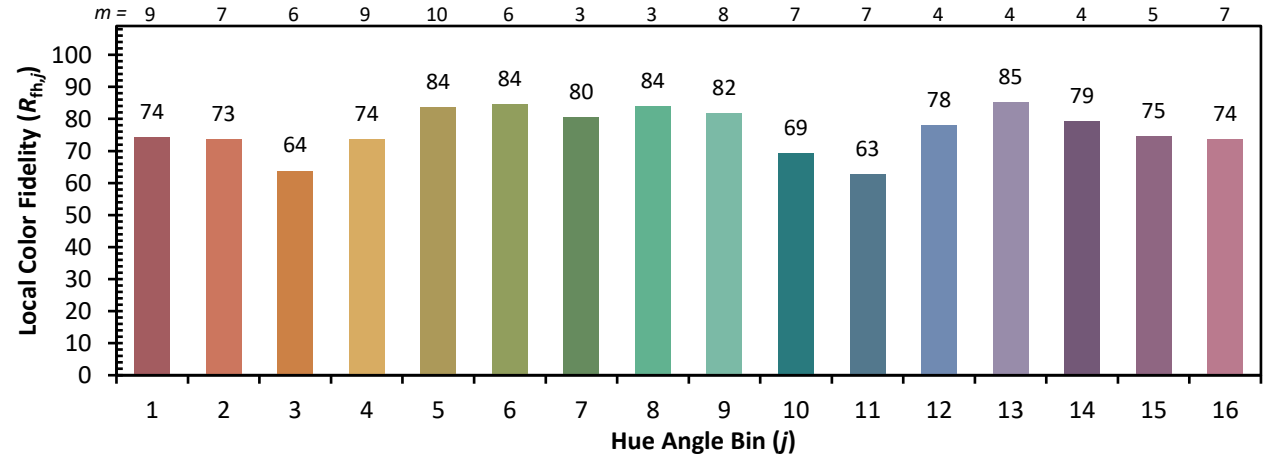
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Color Rendition by Hue-Angle Bin



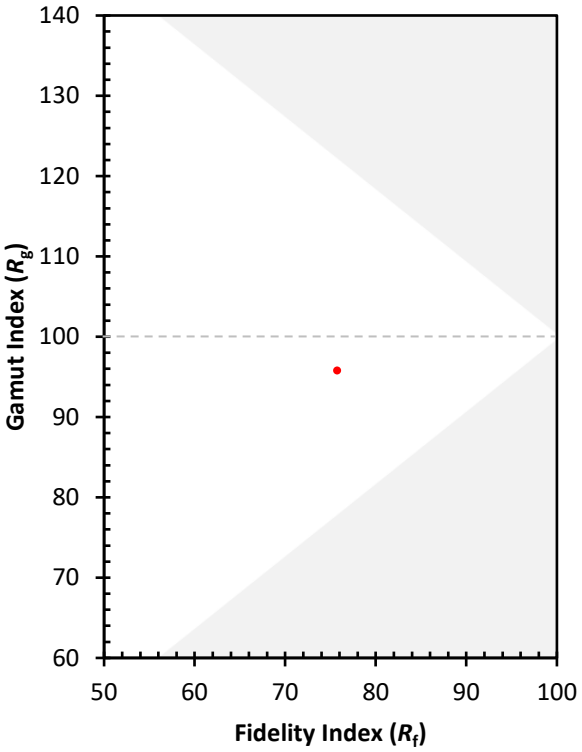


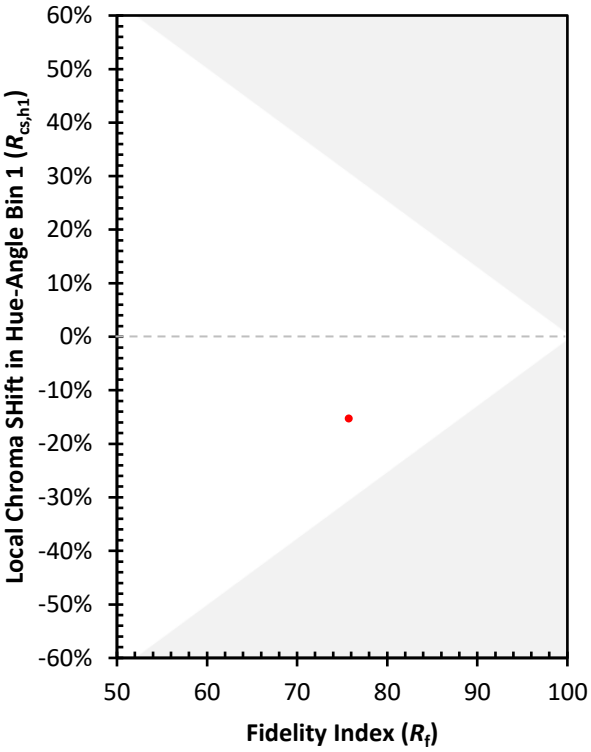


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Measure Comparisons





(END OF REPORT)