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: P821502

Luminaire Tested: **TT-D5-735-12VDC-CQ**

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:	P821502
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-17)
Test Lab:	INNOVATION CENTER
Issue Date:	5/19/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D5-735-12VDC-CQ
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3500K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	8899 lumens
Efficiency:	N/A
Efficacy:	121.9 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G1

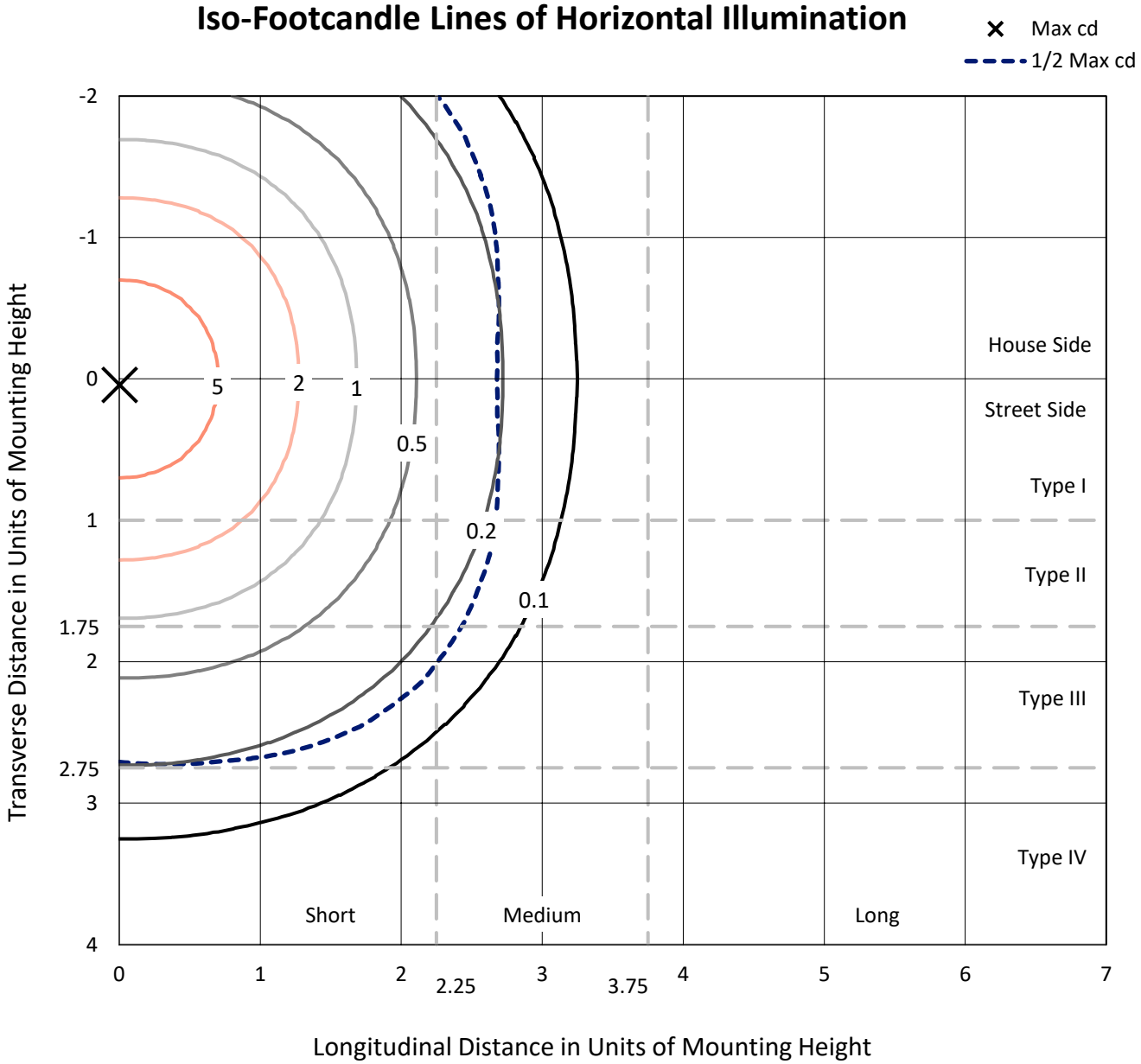
Input Watts (W):	73
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Scaled Data Report

REPORT NUMBER: P821502
CATALOG NUMBER: TT-D5-735-12VDC-CQ

Iso-Footcandle Lines of Horizontal Illumination



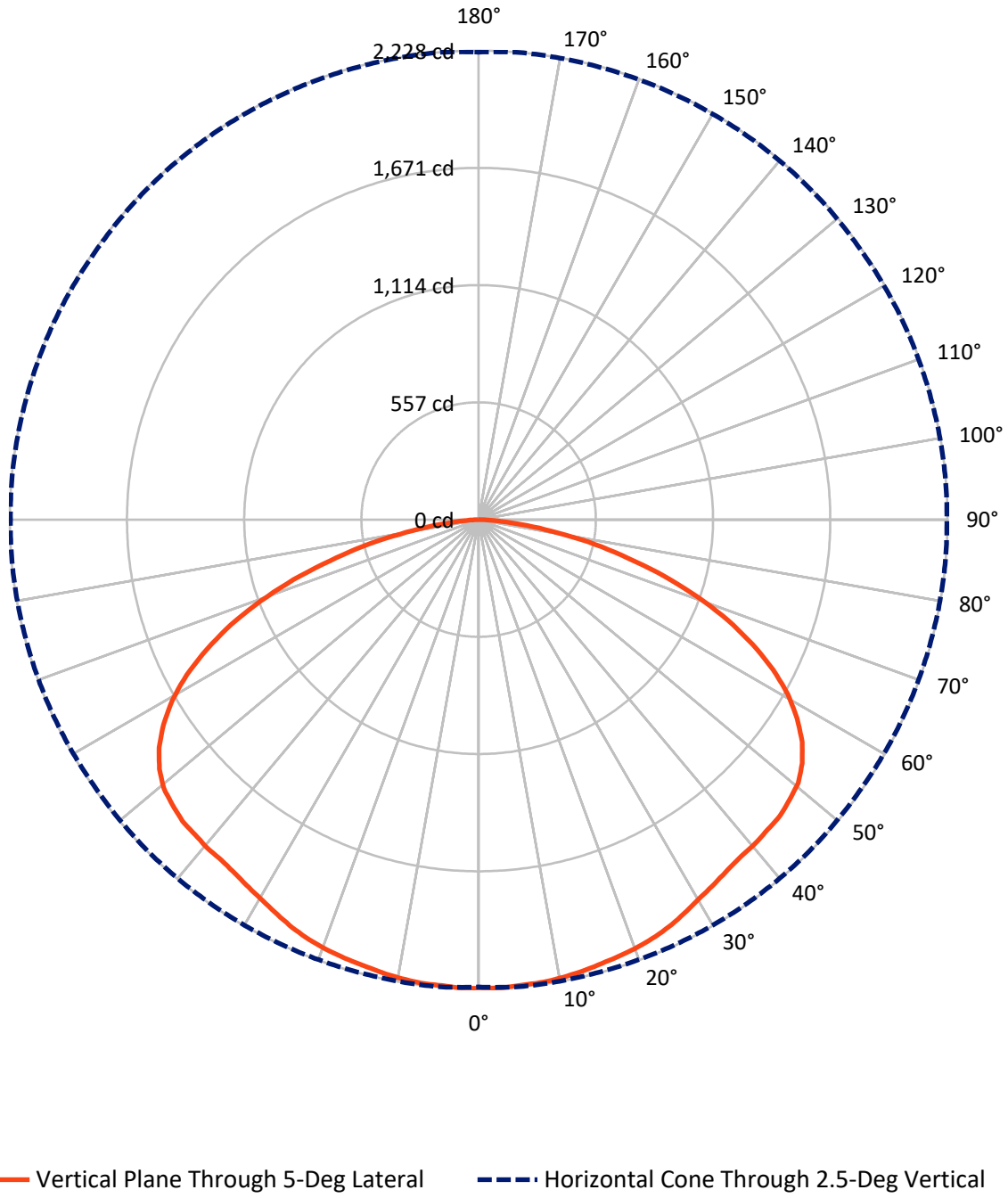
Based on 15 foot mounting height. Maximum calculated value = 9.9 fc
Type V - Short - N/A

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REPORT NUMBER: P821502
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Luminous Intensity Polar Plot



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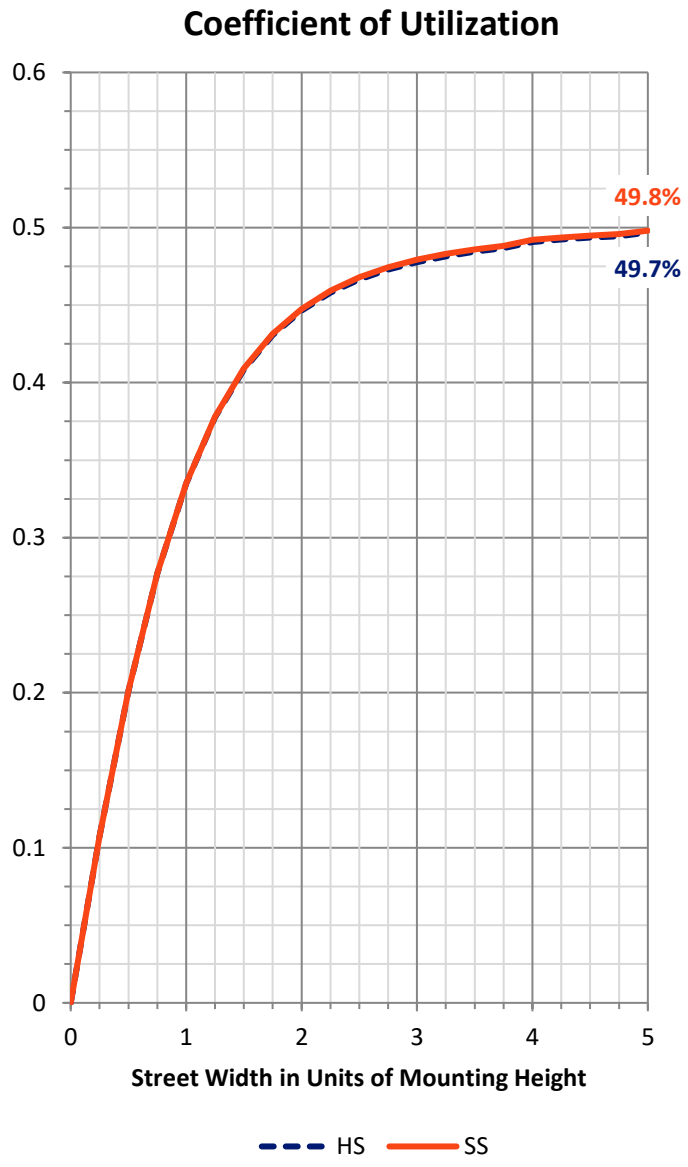
REPORT NUMBER: P821502
CATALOG NUMBER: TT-D5-735-12VDC-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4449.5	0.0	4449.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	4449.5	0.0	4449.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	8899.0	0.0	8899.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	211.8	2.4
10°-20°	620.1	7.0
20°-30°	986.1	11.1
30°-40°	1297.3	14.6
40°-50°	1587.8	17.8
50°-60°	1719.7	19.3
60°-70°	1479.5	16.6
70°-80°	831.8	9.3
80°-90°	164.9	1.9
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°	8899.0	100.0
0°-180°	8899.0	100.0



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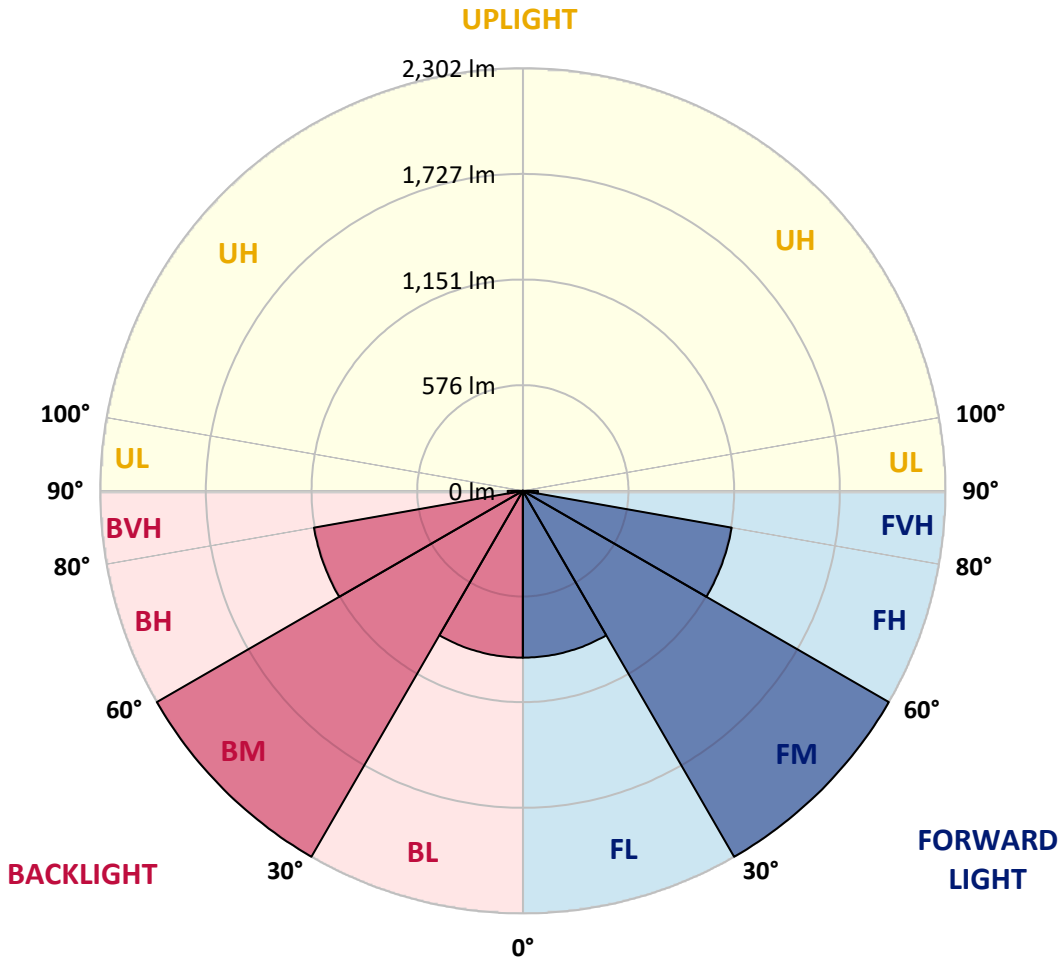
Scaled Data Report

REPORT NUMBER: P821502
CATALOG NUMBER: TT-D5-735-12VDC-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	909.0	10.2			
FM	(30°-60°)	2302.4	25.9			
FH	(60°-80°)	1155.6	13.0			G1/1800
FVH	(80°-90°)	82.5	0.9			G1/100
BL	(0°-30°)	909.0	10.2	B2/1000		
BM	(30°-60°)	2302.4	25.9	B2/2500		
BH	(60°-80°)	1155.6	13.0	B3/2500		G1/1800
BVH	(80°-90°)	82.5	0.9			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G1
Type V Short



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REPORT NUMBER: P821502
CATALOG NUMBER: TT-D5-735-12VDC-CQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2226.3	2226.3	2226.3	2226.3	2226.3	2226.3	2226.3	2226.3	2226.3	2226.3	2226.3
2.5°	2220.6	2227.7	2224.9	2224.9	2224.9	2224.9	2222.0	2224.9	2224.9	2226.3	2224.9
5°	2222.0	2220.6	2220.6	2222.0	2222.0	2223.4	2220.6	2222.0	2223.4	2223.4	2224.9
7.5°	2217.8	2219.2	2216.4	2219.2	2216.4	2217.8	2217.8	2219.2	2217.8	2219.2	2222.0
10°	2209.3	2210.7	2209.3	2209.3	2209.3	2212.1	2206.4	2210.7	2209.3	2210.7	2209.3
12.5°	2193.7	2200.8	2197.9	2200.8	2200.8	2200.8	2196.5	2199.4	2200.8	2200.8	2200.8
15°	2186.6	2188.0	2183.8	2189.4	2190.9	2192.3	2186.6	2189.4	2189.4	2190.9	2192.3
17.5°	2171.0	2178.1	2176.7	2181.0	2179.5	2183.8	2182.4	2181.0	2179.5	2182.4	2179.5
20°	2159.7	2166.8	2165.4	2169.6	2171.0	2175.3	2171.0	2171.0	2166.8	2168.2	2172.5
22.5°	2148.4	2151.2	2151.2	2155.5	2155.5	2159.7	2155.5	2154.0	2154.0	2152.6	2156.9
25°	2130.0	2131.4	2130.0	2134.2	2137.0	2139.9	2138.5	2135.6	2134.2	2134.2	2132.8
27.5°	2100.2	2105.9	2108.7	2114.4	2115.8	2120.1	2114.4	2114.4	2111.6	2108.7	2110.1
30°	2077.6	2080.4	2080.4	2093.1	2093.1	2100.2	2093.1	2091.7	2090.3	2088.9	2086.1
32.5°	2056.3	2060.6	2064.8	2074.7	2081.8	2084.6	2080.4	2077.6	2070.5	2066.2	2064.8
35°	2039.3	2040.7	2049.2	2063.4	2071.9	2079.0	2073.3	2066.2	2056.3	2049.2	2054.9
37.5°	2026.6	2028.0	2040.7	2059.2	2074.7	2080.4	2071.9	2060.6	2045.0	2036.5	2033.7
40°	2015.3	2023.8	2037.9	2063.4	2080.4	2088.9	2081.8	2066.2	2043.6	2026.6	2025.2
42.5°	2009.6	2013.8	2035.1	2064.8	2088.9	2100.2	2090.3	2069.1	2040.7	2020.9	2019.5
45°	1995.4	2008.2	2028.0	2066.2	2093.1	2107.3	2093.1	2066.2	2032.2	2009.6	2005.3
47.5°	1984.1	1988.3	2019.5	2063.4	2096.0	2107.3	2093.1	2059.2	2016.7	1986.9	1984.1
50°	1957.2	1967.1	1998.3	2045.0	2083.2	2094.6	2077.6	2032.2	1984.1	1951.5	1945.9
52.5°	1916.1	1924.6	1961.4	2019.5	2056.3	2069.1	2043.6	1995.4	1938.8	1899.1	1899.1
55°	1852.4	1865.1	1903.4	1962.9	2009.6	2020.9	1991.2	1940.2	1876.5	1836.8	1835.4
57.5°	1775.9	1784.4	1825.5	1890.6	1935.9	1952.9	1923.2	1866.6	1802.8	1756.1	1751.8
60°	1676.8	1688.1	1732.0	1794.3	1841.1	1855.2	1829.7	1773.1	1707.9	1658.4	1658.4
62.5°	1557.8	1570.6	1614.5	1678.2	1726.3	1747.6	1712.2	1658.4	1590.4	1542.2	1538.0
65°	1419.0	1430.4	1470.0	1536.6	1586.1	1601.7	1574.8	1518.2	1453.0	1407.7	1403.5
67.5°	1263.3	1278.8	1318.5	1375.1	1417.6	1437.4	1420.5	1369.5	1301.5	1254.8	1250.5
70°	1094.7	1106.1	1137.2	1189.6	1237.8	1251.9	1226.4	1192.4	1128.7	1086.2	1080.6
72.5°	914.9	924.8	950.3	999.8	1033.8	1052.2	1038.1	994.2	943.2	907.8	913.5
75°	733.6	732.2	760.5	795.9	827.1	839.8	829.9	801.6	754.8	725.1	723.7
77.5°	552.3	566.5	576.4	606.1	631.6	641.5	627.4	604.7	569.3	545.2	549.5
80°	388.0	379.5	398.0	416.4	433.4	443.3	434.8	422.0	398.0	379.5	376.7
82.5°	237.9	230.8	239.3	256.3	267.7	270.5	271.9	256.3	246.4	232.3	235.1
85°	104.8	106.2	113.3	124.6	126.0	127.5	127.5	124.6	113.3	111.9	109.0
87.5°	25.5	25.5	26.9	31.2	31.2	32.6	32.6	28.3	26.9	24.1	25.5
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: SP1-2407-176-4

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

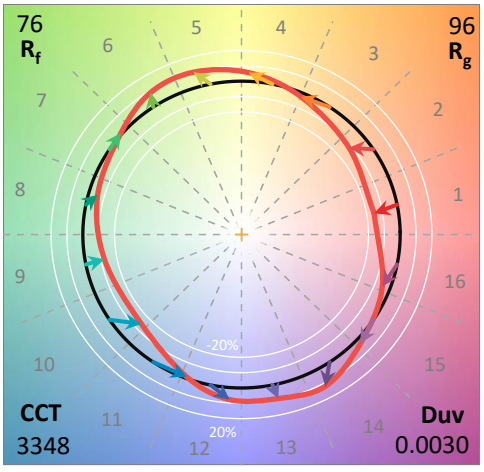
Test Information

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

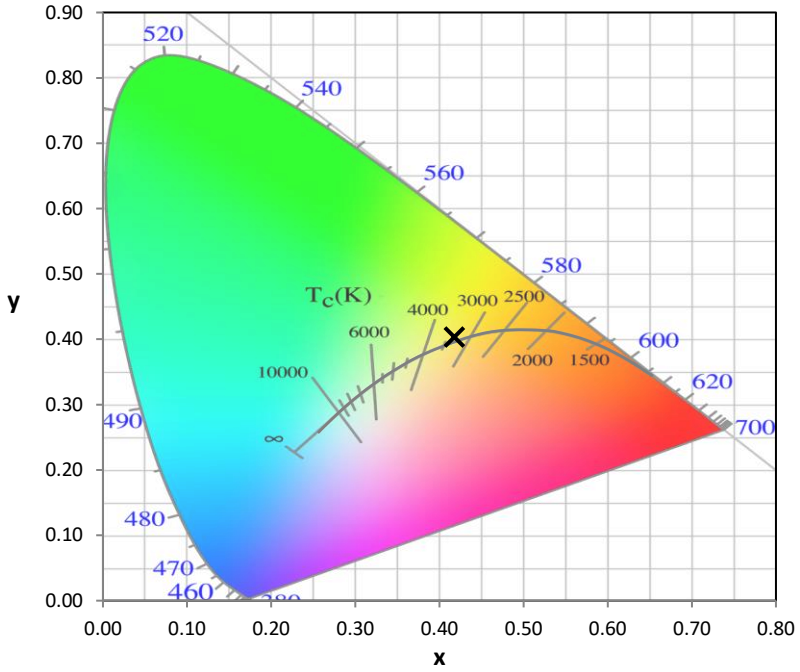
Stabilization Time:	30M
Operation Time:	1H 30M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-4

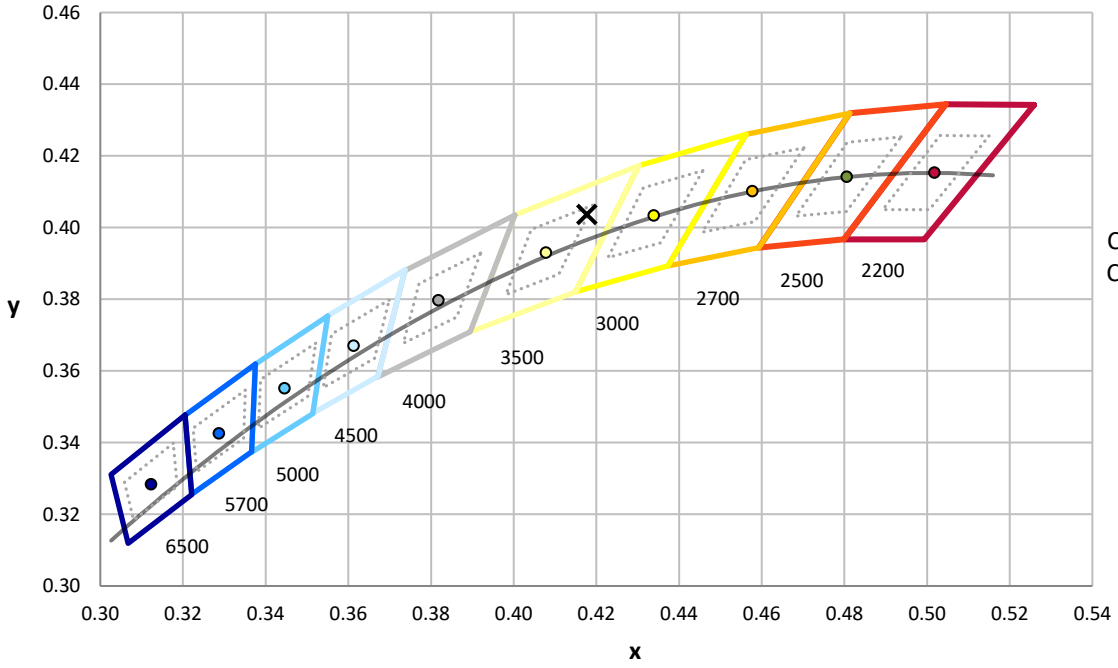
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

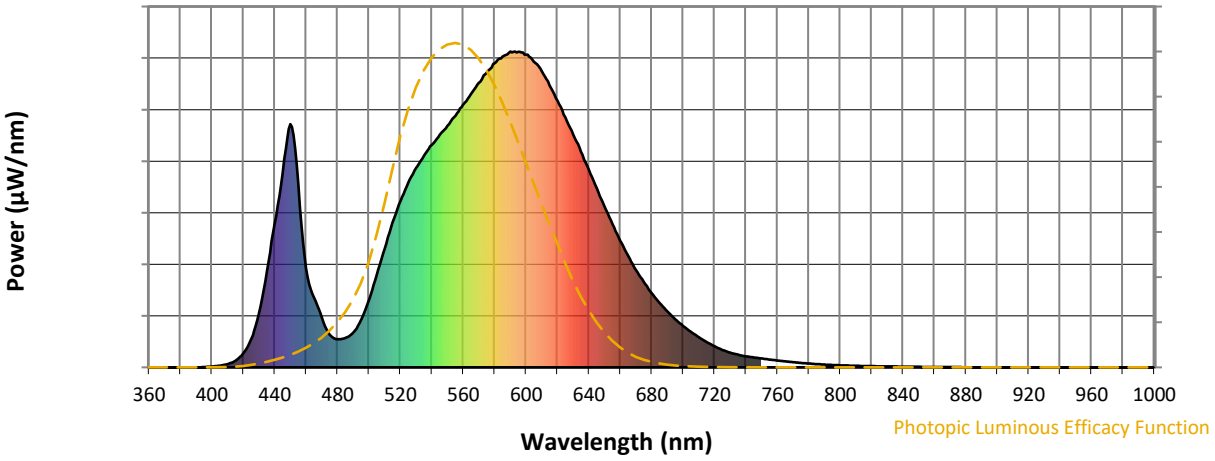


CCT = 3348K
CIE x = 0.4177
CIE y = 0.4036
Duv = 0.0030

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-4

Photopic Flux vs. Wavelength

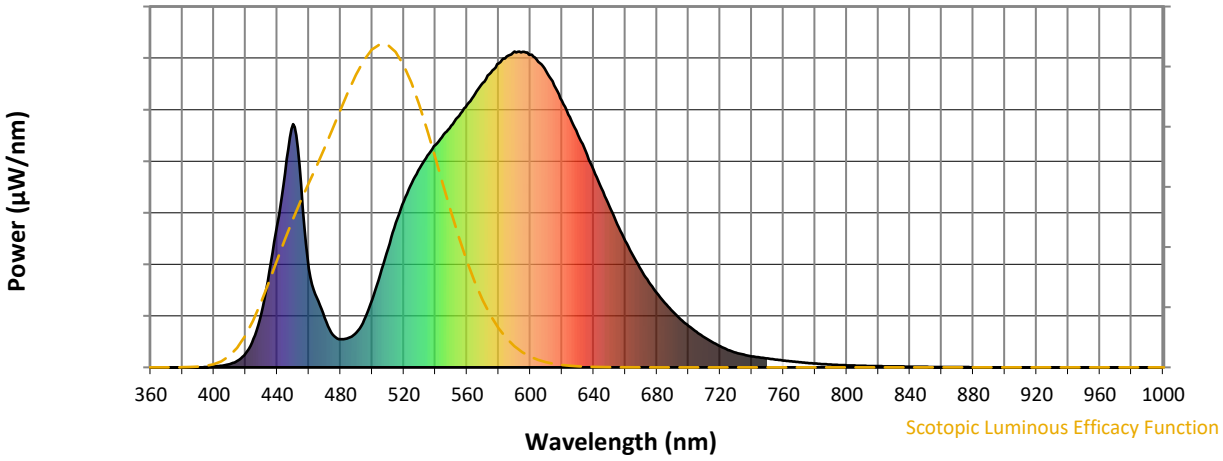


Photopic Lumens: NR

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			

REPORT NUMBER: SP1-2407-176-4

Scotopic Flux vs. Wavelength

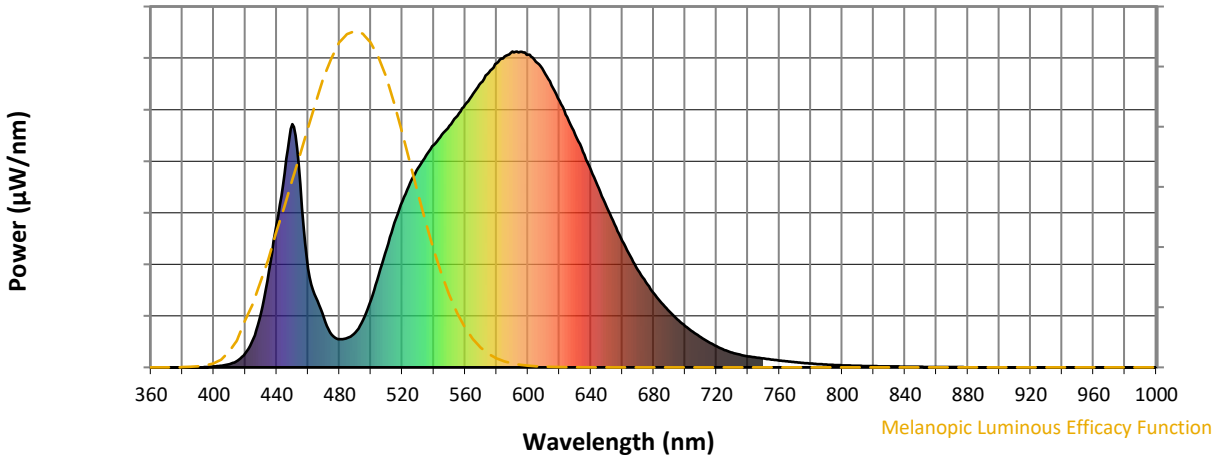


Scotopic Lumens: NR **S/P: 1.31**

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			

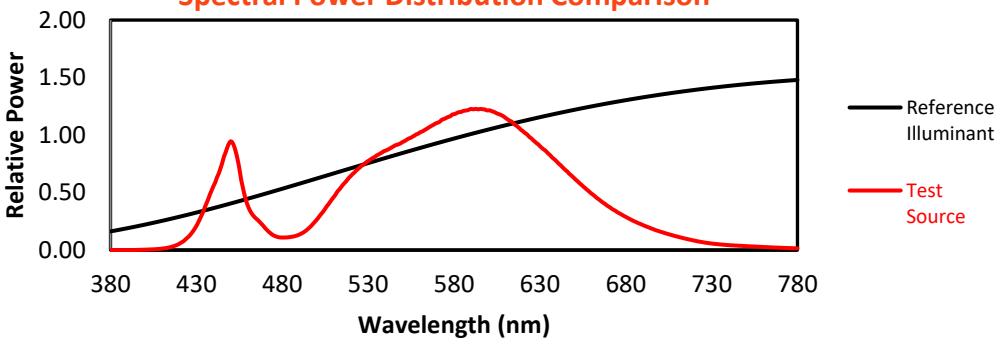
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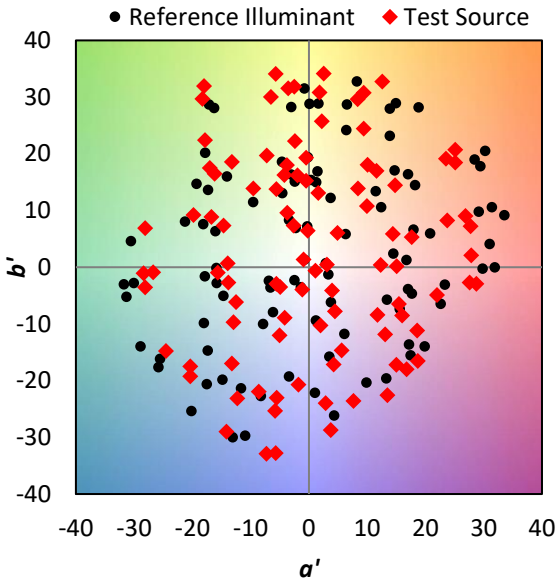
Summary

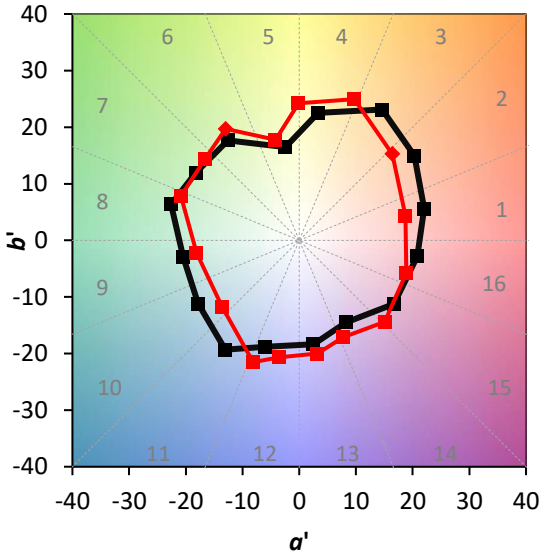
R_f = 75.8
R_g = 95.8
CIE R_a = 73.4
R_9 = -19.2

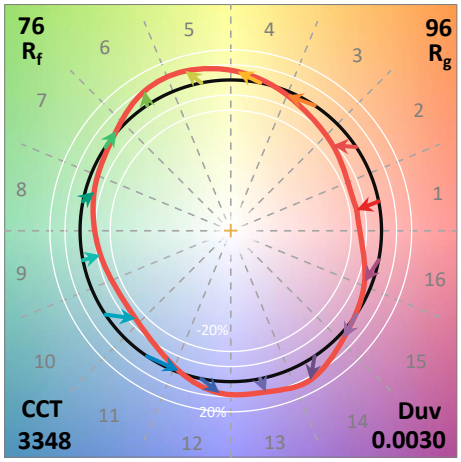
Spectral Power Distribution Comparison

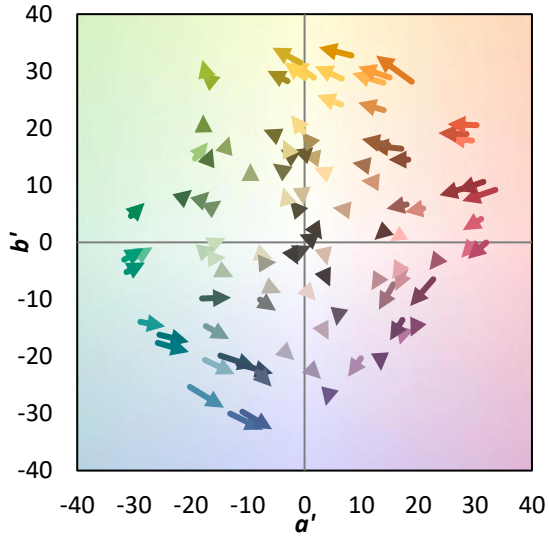


Color Vector Graphics







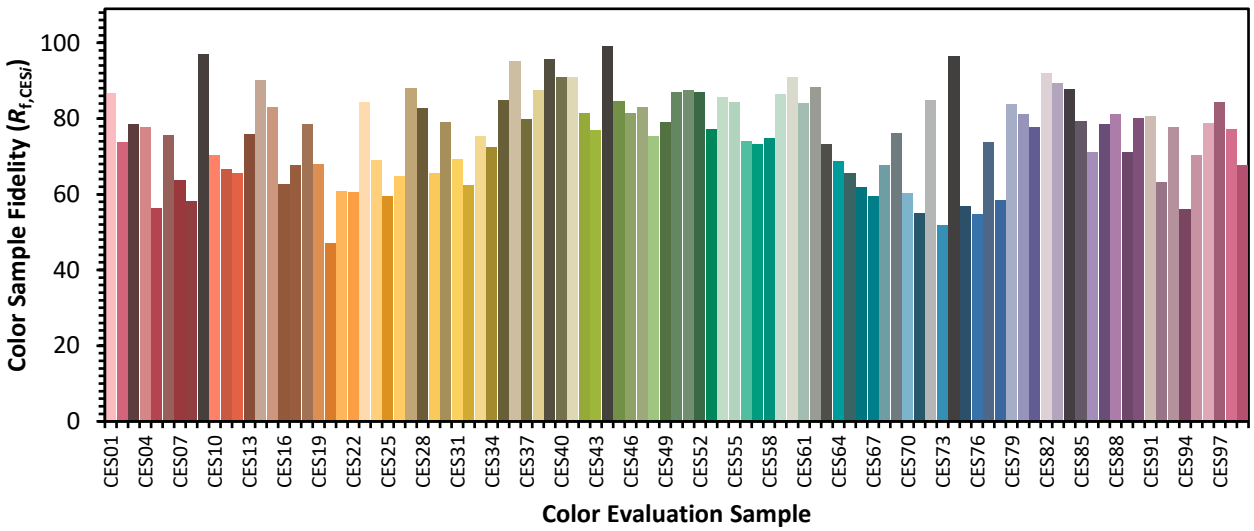


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Individual Sample Fidelity Index ($R_{f,i}$)

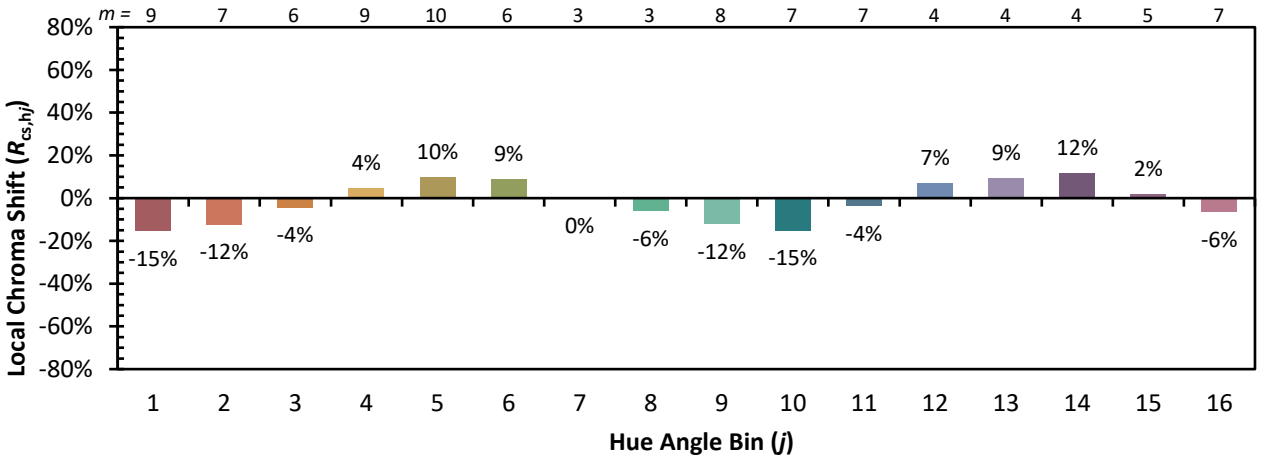
CES01 = 86	CES26 = 65	CES51 = 88	CES76 = 55
CES02 = 62	CES27 = 88	CES52 = 87	CES77 = 74
CES03 = 31	CES28 = 83	CES53 = 77	CES78 = 58
CES04 = 70	CES29 = 66	CES54 = 86	CES79 = 84
CES05 = 48	CES30 = 79	CES55 = 84	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 74	CES81 = 78
CES07 = 41	CES32 = 62	CES57 = 73	CES82 = 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	

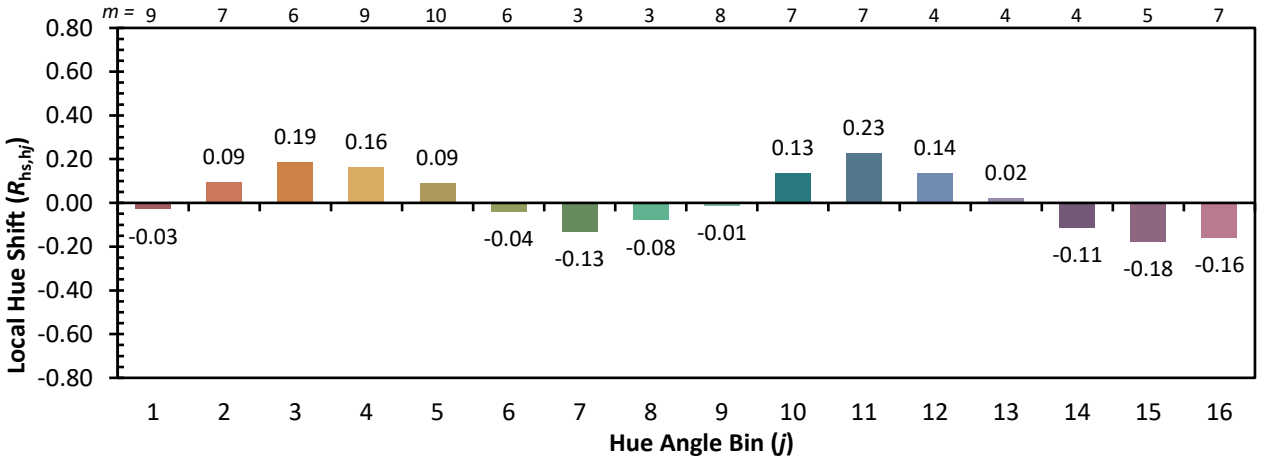


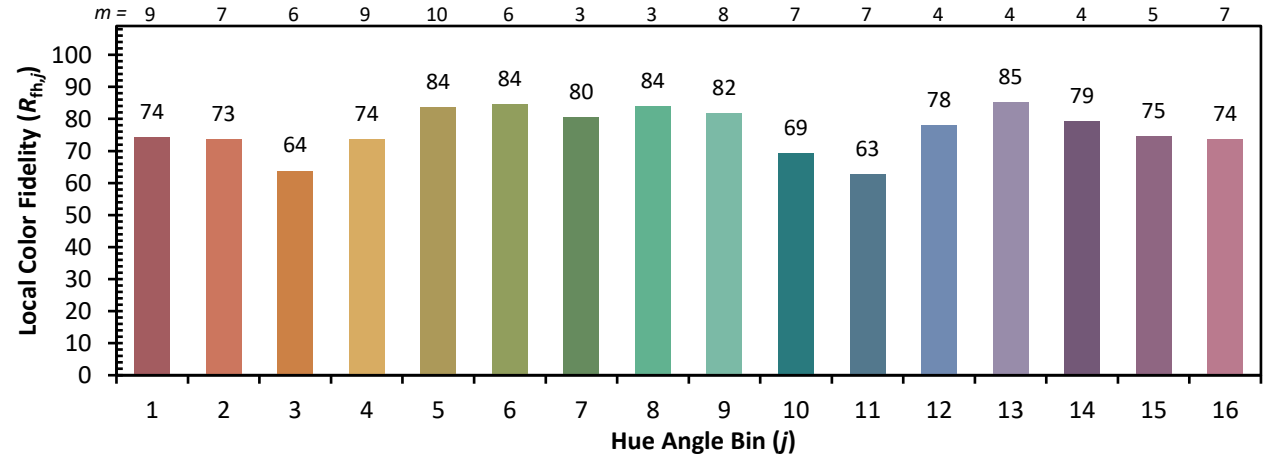
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Color Rendition by Hue-Angle Bin



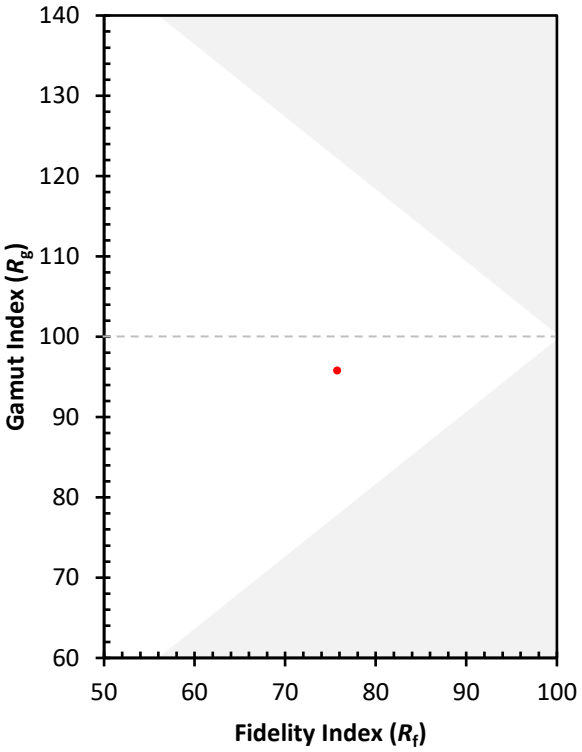


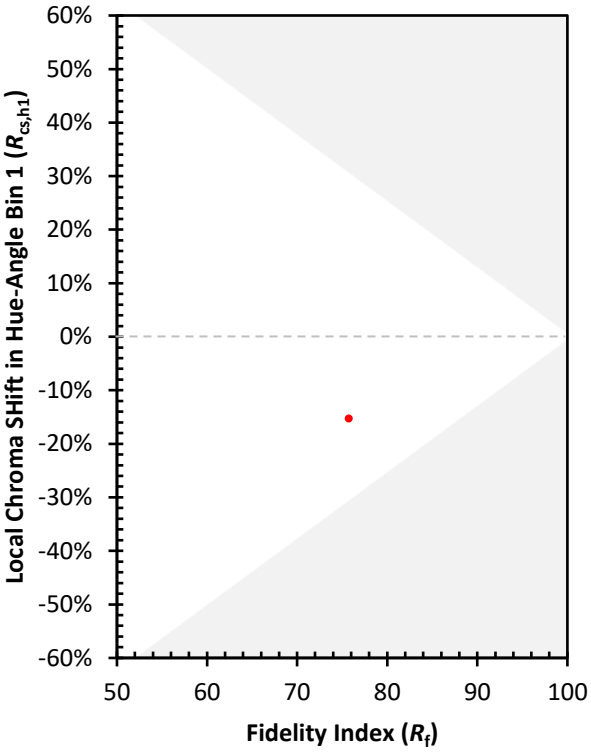


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Measure Comparisons





(END OF REPORT)