Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P630372

Luminaire Tested: GWS-SA1D-750-U-5NQ-W-GRSWH

Issue Date: 1/10/2023

Report Generated By 670246102 / DESKTOP-G35701P

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-2019
Report Number:	P630372
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-9)
Test Lab:	COOPER LIGHTING SOLUTIONS
Issue Date:	1/10/2023
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	McGRAW-EDISON
Catalog Number:	GWS-SA1D-750-U-5NQ-W-GRSWH
Description:	GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE V NARROW OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source:	(16) 5000K CCT, 70 CRI LEDS
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5623.1 lumens
Efficiency:	N/A
Efficacy:	126.9 lumens/watt
Luminous Opening:	Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B2 - U0 - G0

Input Watts (W):	44.3
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	0
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	28.75 FT

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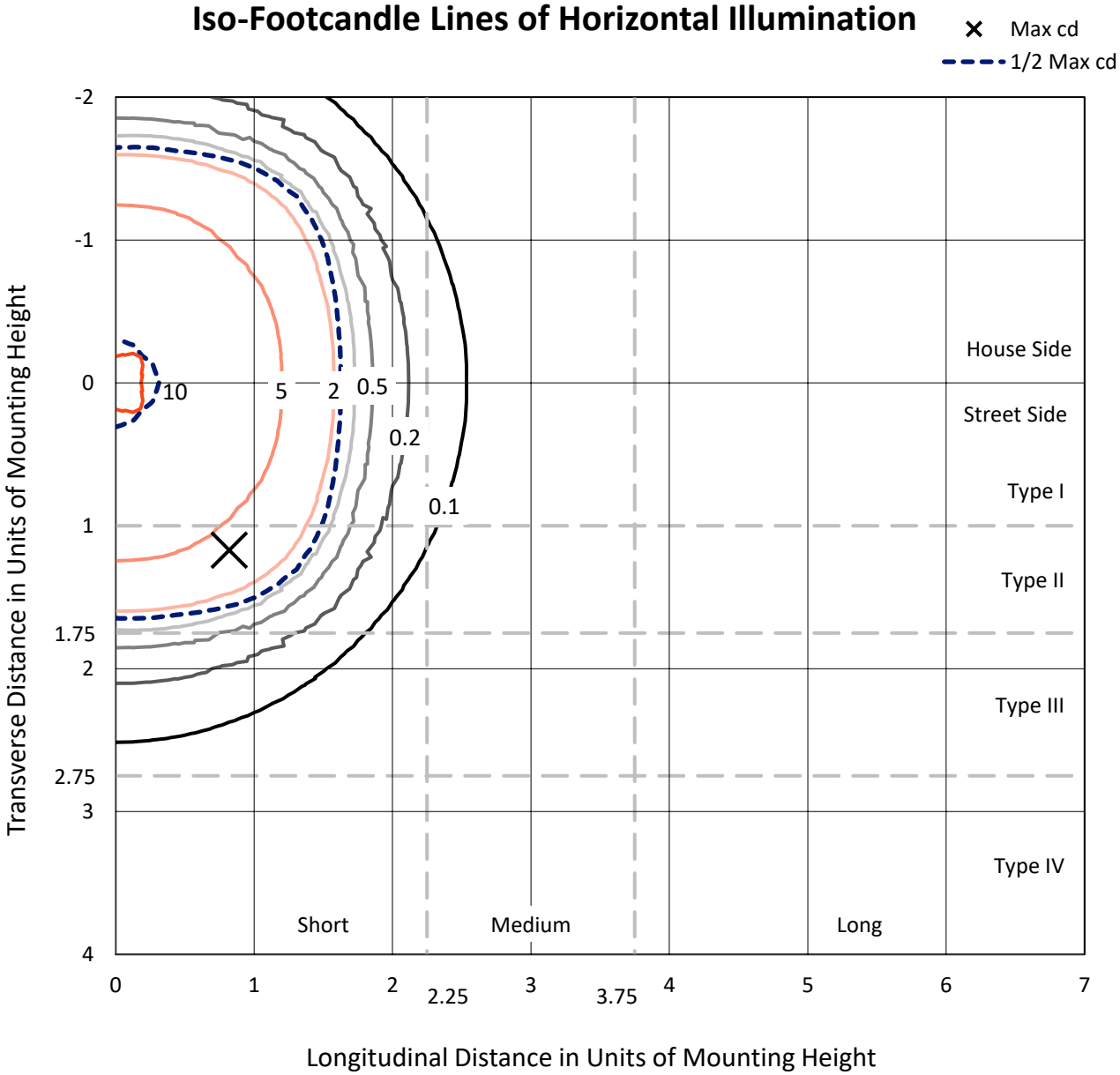
Scaled Data Report

REPORT NUMBER: P630372
CATALOG NUMBER: GWS-SA1D-750-U-5NQ-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination



Based on 10 foot mounting height. Maximum calculated value = 10.1 fc
Type V - Short - N/A

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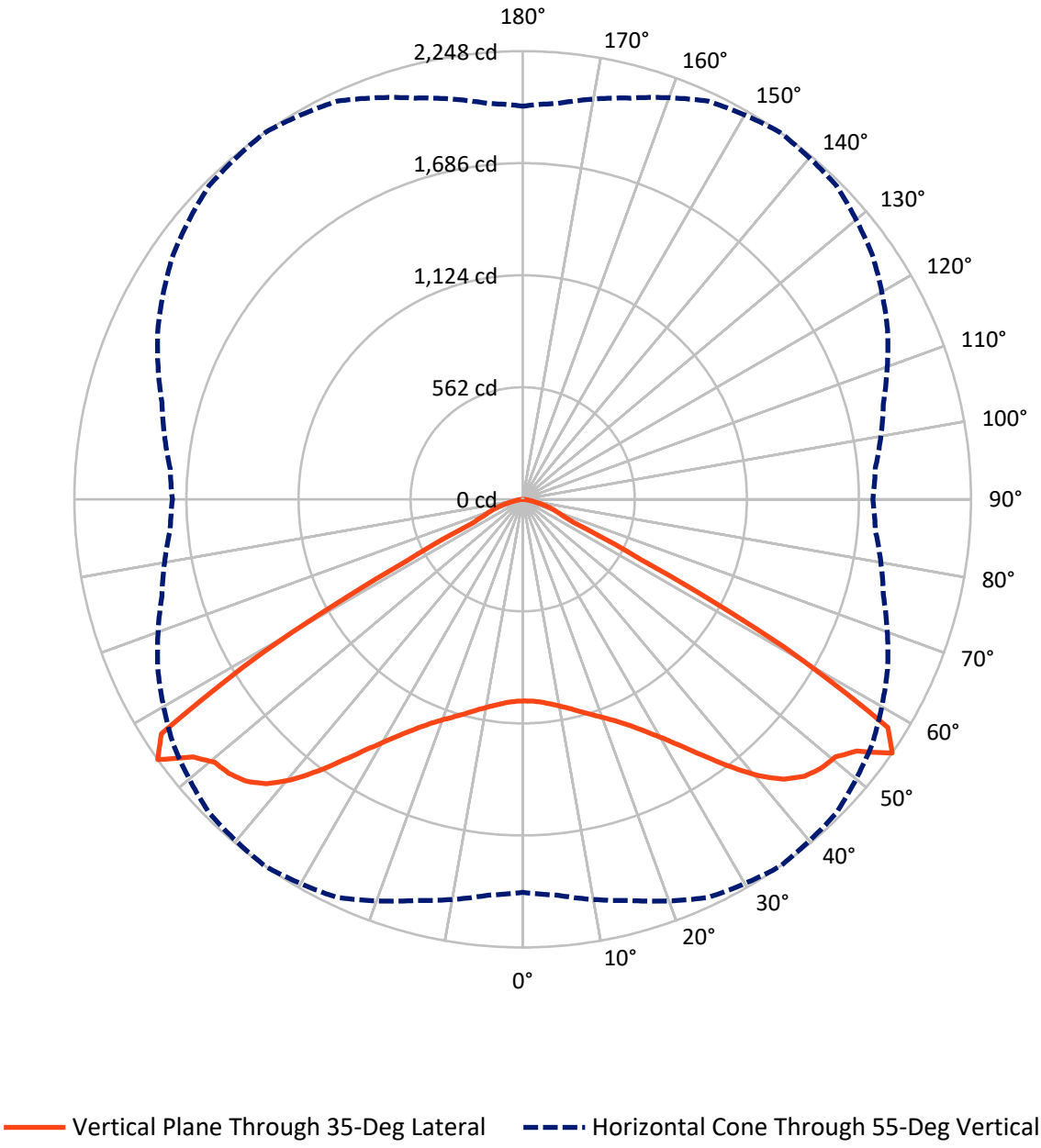
Luminous Intensity Polar Plot



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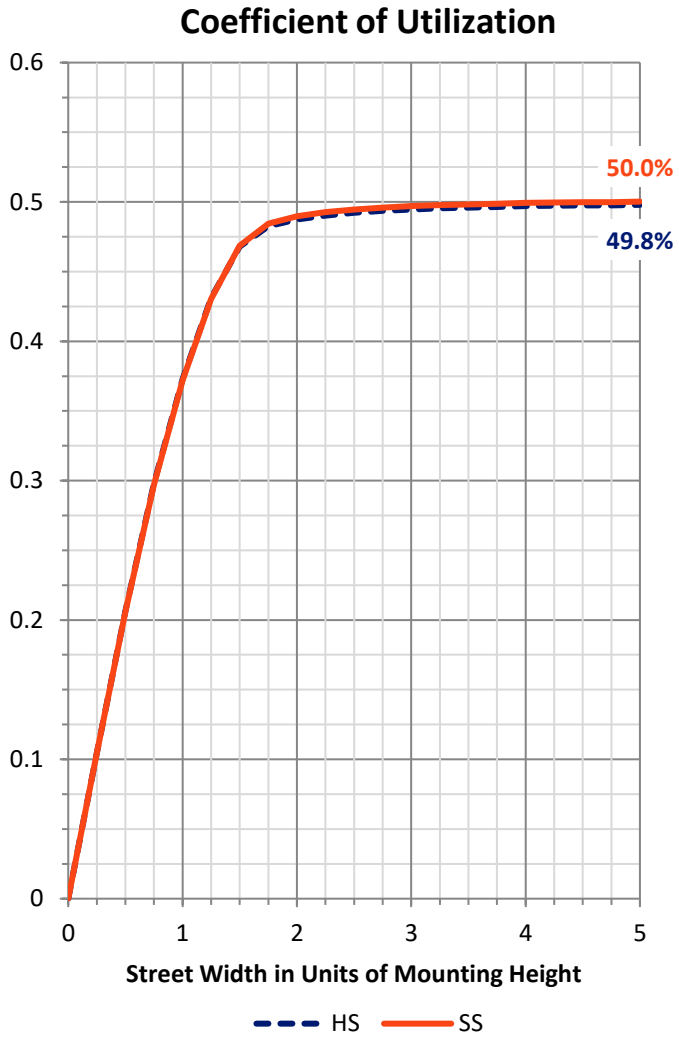
REPORT NUMBER: P630372
CATALOG NUMBER: GWS-SA1D-750-U-5NQ-W-GRSWH

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2811.5	0.0	2811.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2811.5	0.0	2811.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	5623.1	0.0	5623.1
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.7	1.8
10°-20°	314.1	5.6
20°-30°	581.4	10.3
30°-40°	972.6	17.3
40°-50°	1482.1	26.4
50°-60°	1660.2	29.5
60°-70°	392.8	7.0
70°-80°	105.9	1.9
80°-90°	15.2	0.3
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°	5623.1	100.0
0°-180°	5623.1	100.0



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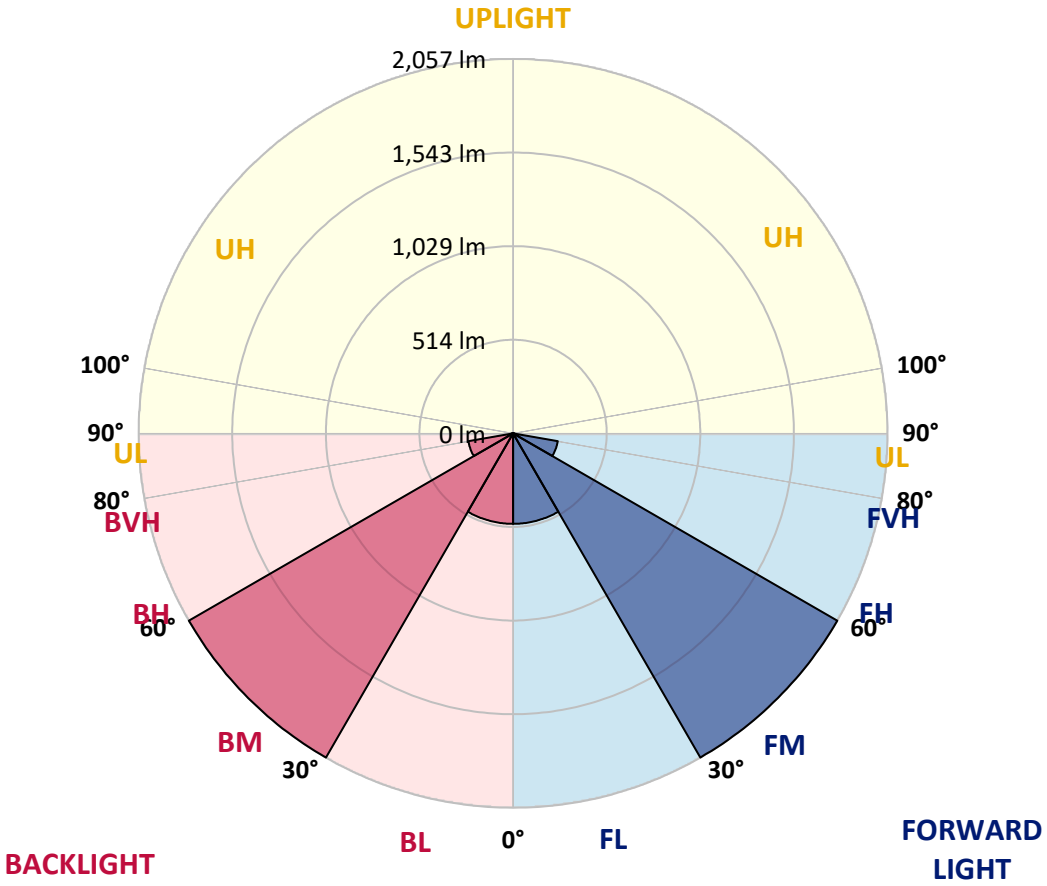
REPORT NUMBER: P630372
CATALOG NUMBER: GWS-SA1D-750-U-5NQ-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	497.1	8.8			
FM	(30°-60°)	2057.4	36.6			
FH	(60°-80°)	249.4	4.4			G0/660
FVH	(80°-90°)	7.6	0.1			G0/10
BL	(0°-30°)	497.1	8.8	B1/500		
BM	(30°-60°)	2057.4	36.6	B2/2500		
BH	(60°-80°)	249.4	4.4	B1/500		G0/660
BVH	(80°-90°)	7.6	0.1			G0/10
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G0
Type V Short



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REPORT NUMBER: P630372
CATALOG NUMBER: GWS-SA1D-750-U-5NQ-W-GRSWH

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1011.6	1011.6	1011.6	1011.6	*1011.6*	1011.6	1011.6	1011.6	1011.6	1011.6	1011.6
2.5°	1009.4	1009.4	1011.2	1013.4	*1013.8*	1018.3	1017.4	1015.6	1014.7	1012.9	1016.9
5°	1020.5	1020.9	1022.3	1023.6	*1022.7*	1026.3	1025.0	1022.7	1021.4	1019.2	1023.2
7.5°	1035.2	1035.2	1036.5	1038.3	*1037.4*	1042.7	1040.1	1037.0	1034.7	1032.1	1035.6
10°	1048.5	1049.4	1050.7	1054.3	*1056.1*	1061.9	1060.1	1055.6	1052.1	1049.0	1053.0
12.5°	1068.5	1069.4	1070.8	1075.6	*1078.8*	1084.5	1081.9	1075.6	1070.3	1065.9	1070.3
15°	1094.3	1093.4	1097.0	1103.2	*1107.2*	1112.5	1109.4	1098.8	1091.7	1085.9	1090.3
17.5°	1120.6	1120.1	1123.7	1131.7	*1137.5*	1144.6	1139.2	1126.8	1119.2	1112.1	1116.6
20°	1149.0	1150.3	1153.9	1161.5	*1169.9*	1179.2	1174.8	1161.5	1153.0	1145.0	1148.6
22.5°	1184.1	1184.6	1188.6	1198.4	*1209.5*	1218.4	1215.7	1199.3	1188.6	1180.1	1184.6
25°	1226.4	1225.9	1231.3	1242.8	*1258.4*	1267.3	1261.5	1243.3	1231.7	1221.9	1225.5
27.5°	1274.9	1274.4	1282.4	1297.5	*1319.8*	1332.2	1320.2	1297.5	1281.5	1267.7	1270.8
30°	1335.8	1334.4	1343.3	1363.8	*1392.7*	1413.6	1395.8	1364.2	1343.3	1328.7	1331.8
32.5°	1403.4	1405.1	1416.3	1443.8	*1480.3*	1507.4	1480.7	1445.6	1417.6	1396.2	1399.8
35°	1477.6	1477.6	1500.3	1534.5	*1586.6*	1622.6	1581.2	1530.5	1493.2	1463.8	1464.7
37.5°	1560.3	1561.2	1591.0	1638.1	*1706.2*	1748.4	1692.4	1629.7	1584.3	1552.8	1551.0
40°	1661.3	1663.9	1694.6	1747.1	*1823.6*	1862.3	1802.2	1740.9	1694.6	1657.3	1653.7
42.5°	1775.1	1776.0	1808.4	1855.6	*1920.1*	1943.2	1896.0	1845.8	1808.0	1774.2	1770.7
45°	1883.6	1881.4	1909.4	1944.5	*1981.9*	1984.1	1957.9	1937.4	1904.5	1875.6	1870.3
47.5°	1968.1	1966.3	1991.7	2010.8	*2015.2*	1993.4	2001.9	2005.0	1966.7	1927.6	1917.4
50°	2019.7	2023.2	2047.2	2057.9	*2031.7*	1996.1	2028.1	2020.1	1965.4	1914.3	1897.8
52.5°	2050.8	2056.1	2097.9	2125.0	*2097.9*	2064.1	2068.6	2021.4	1942.7	1875.1	1853.8
55°	*1972.1*	*1993.4*	*2083.7*	*2203.8*	*2248.2*	*2224.7*	*2140.2*	*2018.8*	*1872.9*	*1774.7*	*1756.4*
57.5°	1461.6	1495.4	1629.2	1889.4	*2159.7*	2245.6	1998.8	1692.4	1471.4	1345.1	1334.4
60°	746.1	783.9	891.1	1158.3	*1506.1*	1627.0	1392.2	1083.6	861.3	759.0	747.5
62.5°	304.6	310.8	345.9	449.1	*665.7*	767.9	674.6	473.6	355.7	327.7	328.2
65°	239.7	241.0	239.2	245.5	*278.8*	309.5	285.9	251.2	245.0	248.1	245.9
67.5°	209.0	209.4	208.1	208.1	*209.4*	208.1	210.8	212.1	213.0	216.6	214.3
70°	174.8	175.2	175.2	176.1	*175.6*	173.4	177.4	179.2	179.6	181.9	180.5
72.5°	135.2	136.5	137.4	137.8	*137.4*	136.1	138.3	141.4	141.0	143.2	141.0
75°	91.6	93.4	94.3	96.0	*95.6*	95.6	98.3	99.6	98.3	100.0	98.3
77.5°	52.0	53.4	56.0	57.8	*59.6*	60.9	62.7	63.6	63.1	64.0	63.1
80°	30.2	30.7	32.9	33.8	*36.0*	38.2	40.0	40.9	41.4	41.8	41.4
82.5°	17.3	17.8	18.7	19.6	*21.3*	23.1	24.9	26.2	26.2	26.7	26.2
85°	8.4	8.4	8.9	9.3	*10.2*	11.6	12.9	14.2	14.7	14.7	14.7
87.5°	1.3	1.3	1.8	1.8	*2.2*	2.7	3.6	4.4	4.9	4.9	4.9
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-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Test Information

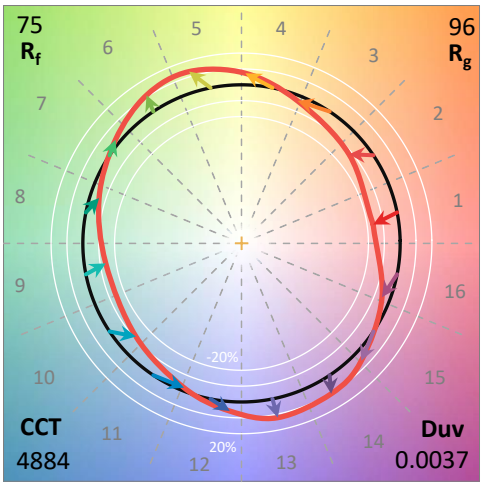
Test Method:	LM-79-2008
Report Number:	SP1-1908-441-4-R4
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	10/28/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	McGRAW-EDISON
Catalog Number:	**SA1C-750-U-5WQ**
Description:	McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K):	4884	CRI (Ra):	73.5		
CIE u':	0.2101	R1:	70.5	R9:	-28.4
CIE v':	0.4904	R2:	77.7	R10:	48.6
Duv:	0.0037	R3:	84.6	R11:	73.2
CIE x:	0.3493	R4:	74.7	R12:	50.7
CIE y:	0.3624	R5:	71.9	R13:	71.2
CIE z:	0.2884	R6:	70.7	R14:	91.4
Peak Wavelength (nm):	444	R7:	81.2		
Dominant Wavelength (nm):	571	R8:	56.9		
Purity:	13.7				

Rf:	74.9
Rg:	96.3



Test Conditions

Stabilization Time:	240M
Operation Time:	12H
Room Temperature (°C) / RH%:	25.0./44%
Sphere Temperature (°C):	25.7

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REPORT NUMBER: SP1-1908-441-4-R4

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/28/2019	12/28/2019
Power Meter	IN0071	12/5/2018	12/5/2019
AC Power Source	IN0063	12/5/2018	12/5/2019
DC Power Source	IN0208	12/5/2018	12/5/2019
Sphere Thermometer	IN0085	12/5/2018	12/5/2019
Room Thermometer	IN0046	12/5/2018	12/5/2019

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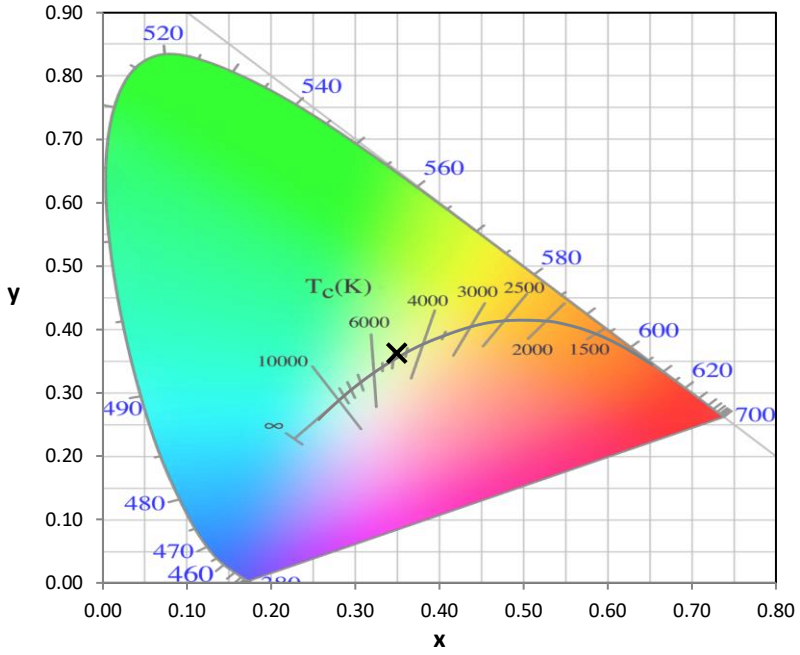
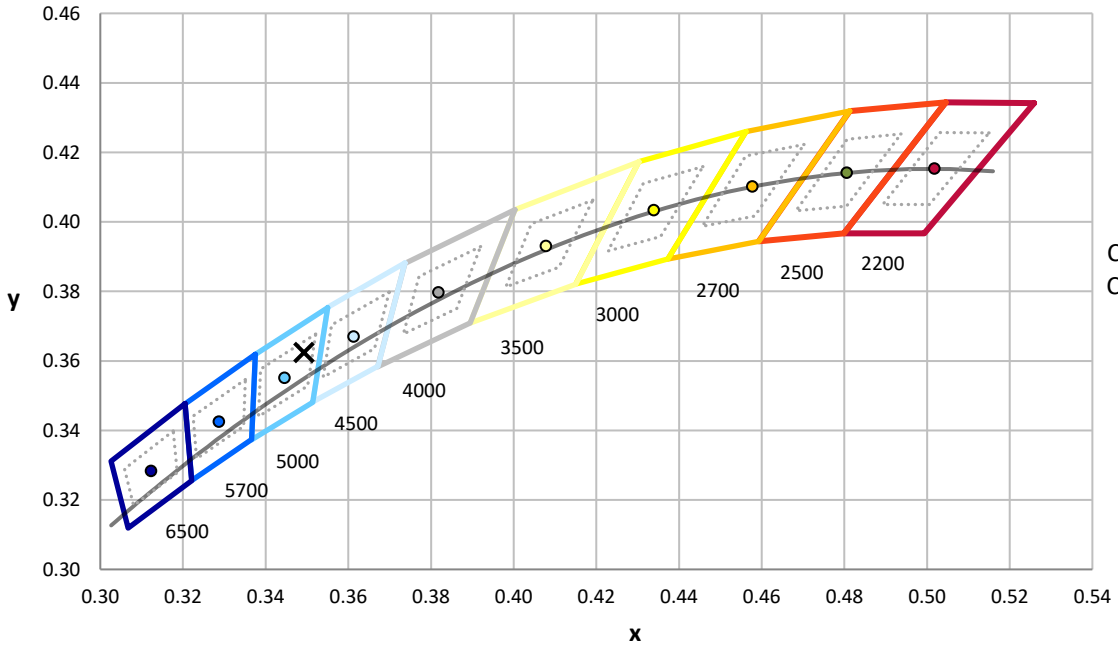
CIE 1931 Chromaticity Diagram



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



CCT = 4884K
CIE x = 0.3493
CIE y = 0.3624
Duv = 0.0037

Point lies inside the ANSI 5000K 4-step quadrangle

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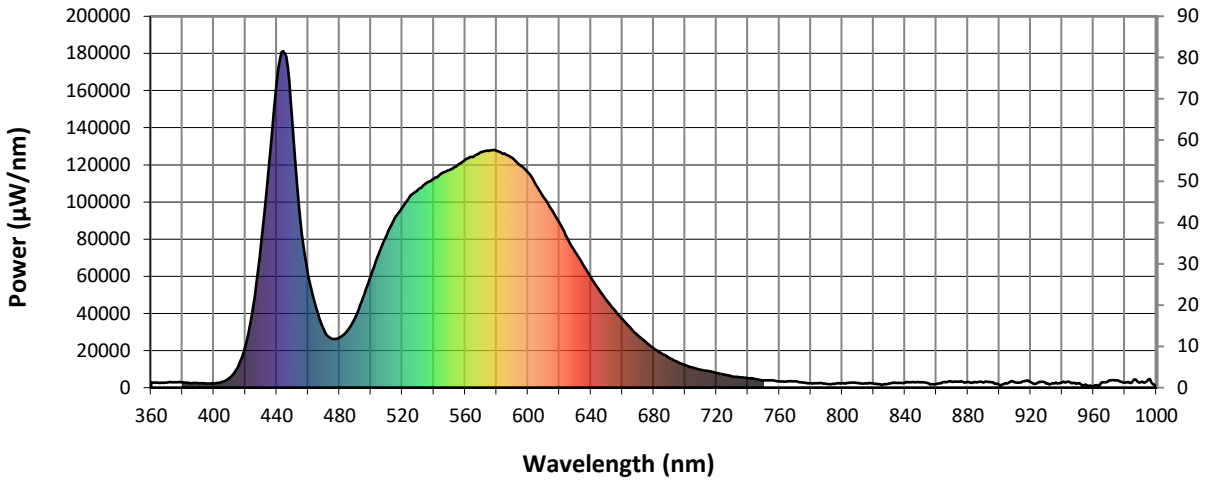
Photopic Flux vs. Wavelength



######

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	2945	NR	490	37941	NR	620	88803	NR	750	3908	NR	880	2997	NR
365	2596	NR	495	48525	NR	625	80578	NR	755	3988	NR	885	2927	NR
370	2732	NR	500	60609	NR	630	73127	NR	760	3335	NR	890	2649	NR
375	2894	NR	505	72036	NR	635	66244	NR	765	3438	NR	895	2828	NR
380	2822	NR	510	82168	NR	640	59440	NR	770	3427	NR	900	1407	NR
385	2394	NR	515	90898	NR	645	52864	NR	775	2759	NR	905	2224	NR
390	2370	NR	520	97142	NR	650	47085	NR	780	2340	NR	910	2905	NR
395	2267	NR	525	103255	NR	655	41789	NR	785	2412	NR	915	3350	NR
400	2262	NR	530	106697	NR	660	37064	NR	790	1999	NR	920	3114	NR
405	3000	NR	535	110081	NR	665	32299	NR	795	2054	NR	925	2834	NR
410	5324	NR	540	112494	NR	670	28142	NR	800	2331	NR	930	2271	NR
415	10725	NR	545	115513	NR	675	24505	NR	805	2648	NR	935	2228	NR
420	22128	NR	550	117203	NR	680	21162	NR	810	2485	NR	940	2833	NR
425	44095	NR	555	119753	NR	685	18400	NR	815	2409	NR	945	2941	NR
430	77002	NR	560	122602	NR	690	16065	NR	820	2221	NR	950	2323	NR
435	119881	NR	565	124314	NR	695	13860	NR	825	1562	NR	955	1667	NR
440	164454	NR	570	126775	NR	700	12177	NR	830	2249	NR	960	749	NR
445	179997	NR	575	127511	NR	705	10757	NR	835	2573	NR	965	2669	NR
450	142822	NR	580	127577	NR	710	9601	NR	840	2764	NR	970	3968	NR
455	90008	NR	585	126153	NR	715	8944	NR	845	3109	NR	975	3886	NR
460	60557	NR	590	123678	NR	720	7947	NR	850	2963	NR	980	2788	NR
465	43305	NR	595	119774	NR	725	7062	NR	855	2336	NR	985	3496	NR
470	31089	NR	600	115733	NR	730	6004	NR	860	2118	NR	990	2913	NR
475	26278	NR	605	109231	NR	735	5594	NR	865	3144	NR	995	4659	NR
480	27060	NR	610	102408	NR	740	5165	NR	870	3069	NR	1000	1308	NR
485	30698	NR	615	96015	NR	745	4687	NR	875	3311	NR			

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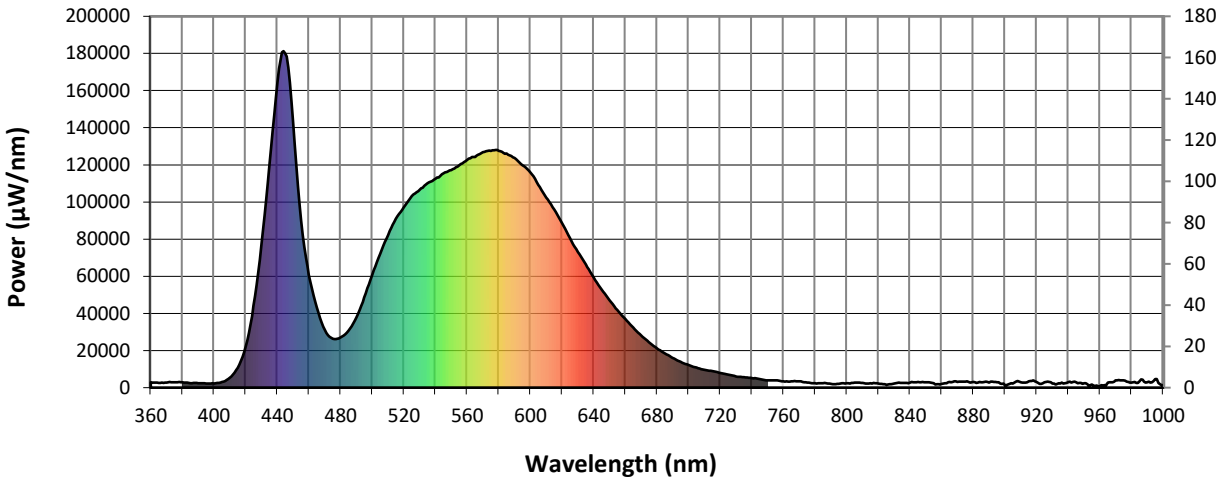
Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 **S/P: 1.77**

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	2945	NR	490	37941	NR	620	88803	NR	750	3908	NR	880	2997	NR
365	2596	NR	495	48525	NR	625	80578	NR	755	3988	NR	885	2927	NR
370	2732	NR	500	60609	NR	630	73127	NR	760	3335	NR	890	2649	NR
375	2894	NR	505	72036	NR	635	66244	NR	765	3438	NR	895	2828	NR
380	2822	NR	510	82168	NR	640	59440	NR	770	3427	NR	900	1407	NR
385	2394	NR	515	90898	NR	645	52864	NR	775	2759	NR	905	2224	NR
390	2370	NR	520	97142	NR	650	47085	NR	780	2340	NR	910	2905	NR
395	2267	NR	525	103255	NR	655	41789	NR	785	2412	NR	915	3350	NR
400	2262	NR	530	106697	NR	660	37064	NR	790	1999	NR	920	3114	NR
405	3000	NR	535	110081	NR	665	32299	NR	795	2054	NR	925	2834	NR
410	5324	NR	540	112494	NR	670	28142	NR	800	2331	NR	930	2271	NR
415	10725	NR	545	115513	NR	675	24505	NR	805	2648	NR	935	2228	NR
420	22128	NR	550	117203	NR	680	21162	NR	810	2485	NR	940	2833	NR
425	44095	NR	555	119753	NR	685	18400	NR	815	2409	NR	945	2941	NR
430	77002	NR	560	122602	NR	690	16065	NR	820	2221	NR	950	2323	NR
435	119881	NR	565	124314	NR	695	13860	NR	825	1562	NR	955	1667	NR
440	164454	NR	570	126775	NR	700	12177	NR	830	2249	NR	960	749	NR
445	179997	NR	575	127511	NR	705	10757	NR	835	2573	NR	965	2669	NR
450	142822	NR	580	127577	NR	710	9601	NR	840	2764	NR	970	3968	NR
455	90008	NR	585	126153	NR	715	8944	NR	845	3109	NR	975	3886	NR
460	60557	NR	590	123678	NR	720	7947	NR	850	2963	NR	980	2788	NR
465	43305	NR	595	119774	NR	725	7062	NR	855	2336	NR	985	3496	NR
470	31089	NR	600	115733	NR	730	6004	NR	860	2118	NR	990	2913	NR
475	26278	NR	605	109231	NR	735	5594	NR	865	3144	NR	995	4659	NR
480	27060	NR	610	102408	NR	740	5165	NR	870	3069	NR	1000	1308	NR
485	30698	NR	615	96015	NR	745	4687	NR	875	3311	NR			

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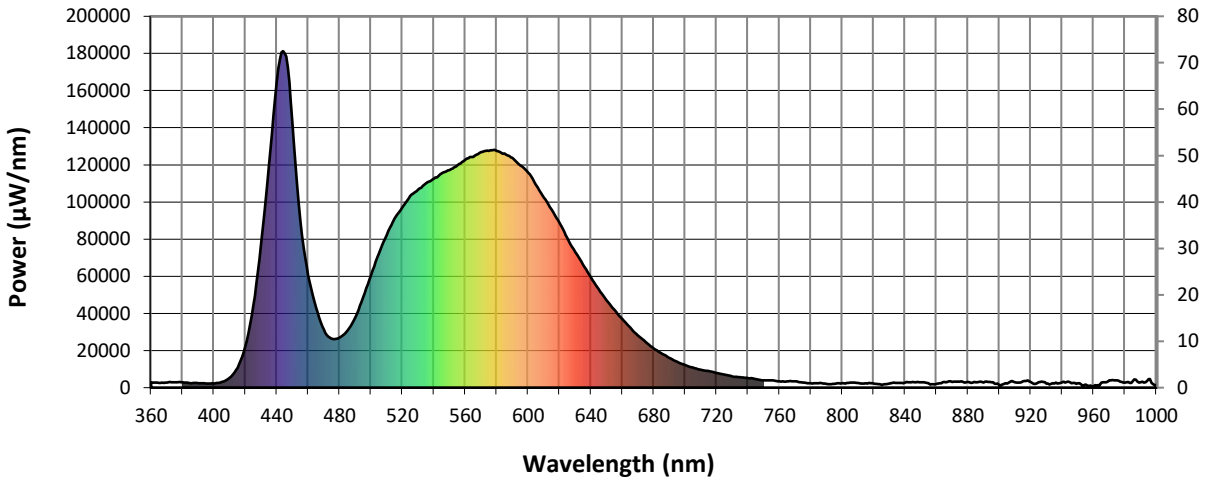
Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 **M/P: 0.71**

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	2945	NR	490	37941	NR	620	88803	NR	750	3908	NR	880	2997	NR
365	2596	NR	495	48525	NR	625	80578	NR	755	3988	NR	885	2927	NR
370	2732	NR	500	60609	NR	630	73127	NR	760	3335	NR	890	2649	NR
375	2894	NR	505	72036	NR	635	66244	NR	765	3438	NR	895	2828	NR
380	2822	NR	510	82168	NR	640	59440	NR	770	3427	NR	900	1407	NR
385	2394	NR	515	90898	NR	645	52864	NR	775	2759	NR	905	2224	NR
390	2370	NR	520	97142	NR	650	47085	NR	780	2340	NR	910	2905	NR
395	2267	NR	525	103255	NR	655	41789	NR	785	2412	NR	915	3350	NR
400	2262	NR	530	106697	NR	660	37064	NR	790	1999	NR	920	3114	NR
405	3000	NR	535	110081	NR	665	32299	NR	795	2054	NR	925	2834	NR
410	5324	NR	540	112494	NR	670	28142	NR	800	2331	NR	930	2271	NR
415	10725	NR	545	115513	NR	675	24505	NR	805	2648	NR	935	2228	NR
420	22128	NR	550	117203	NR	680	21162	NR	810	2485	NR	940	2833	NR
425	44095	NR	555	119753	NR	685	18400	NR	815	2409	NR	945	2941	NR
430	77002	NR	560	122602	NR	690	16065	NR	820	2221	NR	950	2323	NR
435	119881	NR	565	124314	NR	695	13860	NR	825	1562	NR	955	1667	NR
440	164454	NR	570	126775	NR	700	12177	NR	830	2249	NR	960	749	NR
445	179997	NR	575	127511	NR	705	10757	NR	835	2573	NR	965	2669	NR
450	142822	NR	580	127577	NR	710	9601	NR	840	2764	NR	970	3968	NR
455	90008	NR	585	126153	NR	715	8944	NR	845	3109	NR	975	3886	NR
460	60557	NR	590	123678	NR	720	7947	NR	850	2963	NR	980	2788	NR
465	43305	NR	595	119774	NR	725	7062	NR	855	2336	NR	985	3496	NR
470	31089	NR	600	115733	NR	730	6004	NR	860	2118	NR	990	2913	NR
475	26278	NR	605	109231	NR	735	5594	NR	865	3144	NR	995	4659	NR
480	27060	NR	610	102408	NR	740	5165	NR	870	3069	NR	1000	1308	NR
485	30698	NR	615	96015	NR	745	4687	NR	875	3311	NR			

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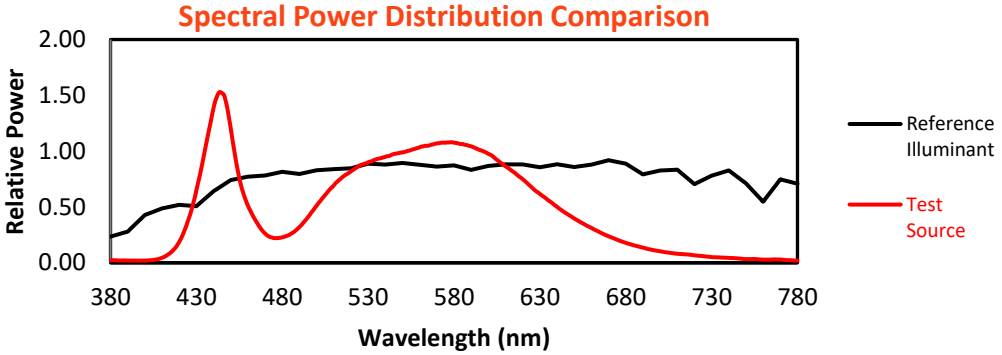
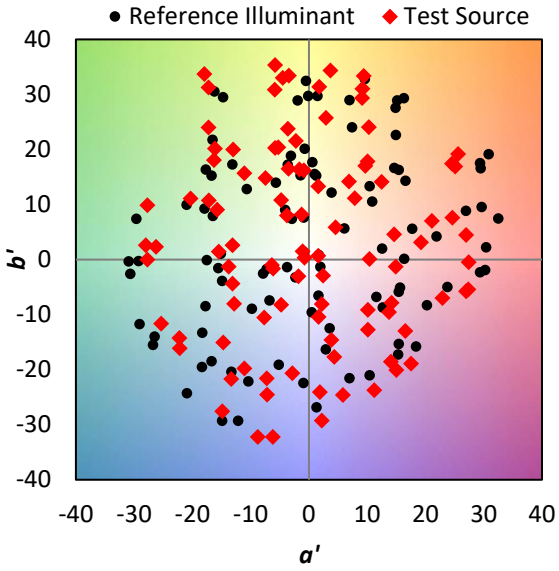
Summary

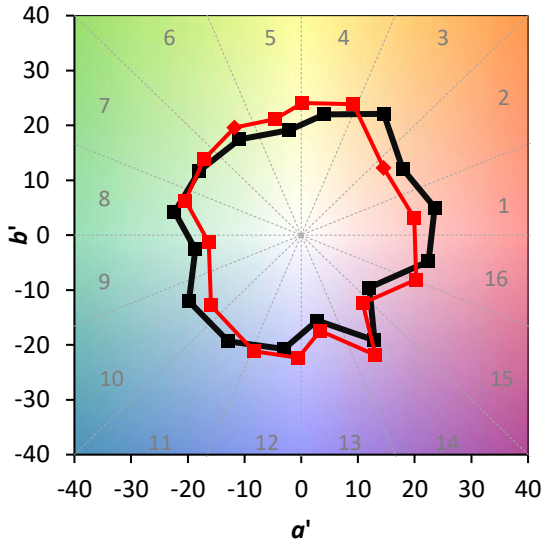
R_f = 74.9
R_g = 96.3
CIE R_a = 73.5
R_9 = -28.4

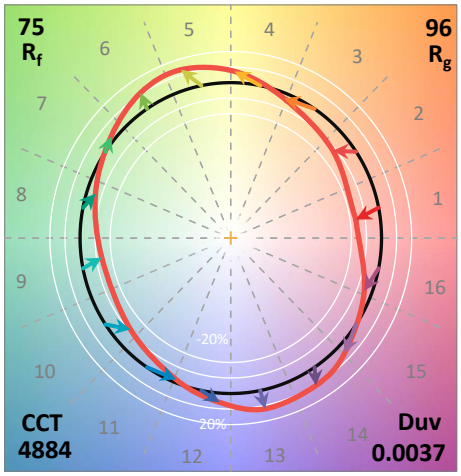
Spectral Power Distribution Comparison

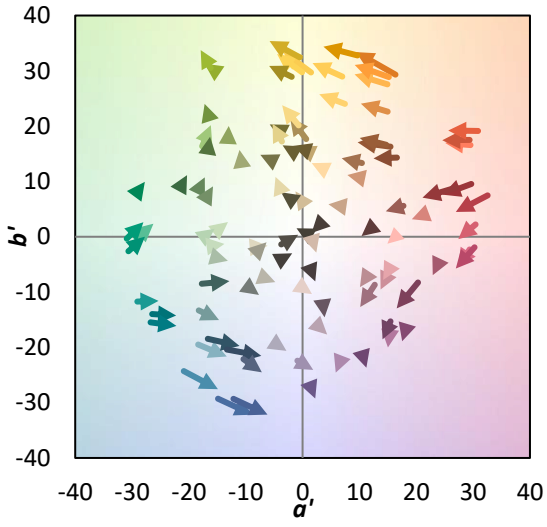


Color Vector Graphics









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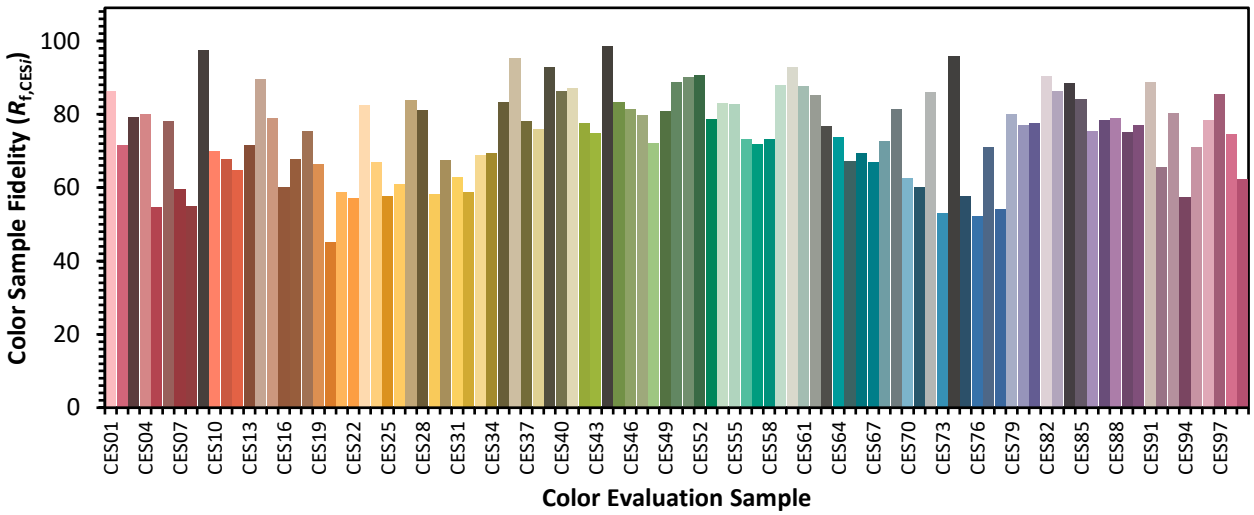
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 61	CES51 = 90	CES76 = 52
CES02 = 60	CES27 = 84	CES52 = 91	CES77 = 71
CES03 = 30	CES28 = 81	CES53 = 79	CES78 = 54
CES04 = 69	CES29 = 58	CES54 = 83	CES79 = 80
CES05 = 46	CES30 = 67	CES55 = 83	CES80 = 77
CES06 = 50	CES31 = 63	CES56 = 73	CES81 = 77
CES07 = 39	CES32 = 59	CES57 = 72	CES82 = 90
CES08 = 38	CES33 = 69	CES58 = 73	CES83 = 86
CES09 = 29	CES34 = 69	CES59 = 88	CES84 = 88
CES10 = 73	CES35 = 83	CES60 = 93	CES85 = 84
CES11 = 56	CES36 = 95	CES61 = 88	CES86 = 75
CES12 = 61	CES37 = 78	CES62 = 85	CES87 = 78
CES13 = 41	CES38 = 76	CES63 = 77	CES88 = 79
CES14 = 74	CES39 = 93	CES64 = 74	CES89 = 75
CES15 = 70	CES40 = 86	CES65 = 67	CES90 = 77
CES16 = 46	CES41 = 87	CES66 = 69	CES91 = 89
CES17 = 49	CES42 = 78	CES67 = 67	CES92 = 66
CES18 = 55	CES43 = 75	CES68 = 73	CES93 = 80
CES19 = 71	CES44 = 99	CES69 = 81	CES94 = 57
CES20 = 64	CES45 = 83	CES70 = 63	CES95 = 71
CES21 = 85	CES46 = 81	CES71 = 60	CES96 = 78
CES22 = 77	CES47 = 80	CES72 = 86	CES97 = 85
CES23 = 91	CES48 = 72	CES73 = 53	CES98 = 75
CES24 = 90	CES49 = 81	CES74 = 96	CES99 = 62
CES25 = 71	CES50 = 89	CES75 = 58	



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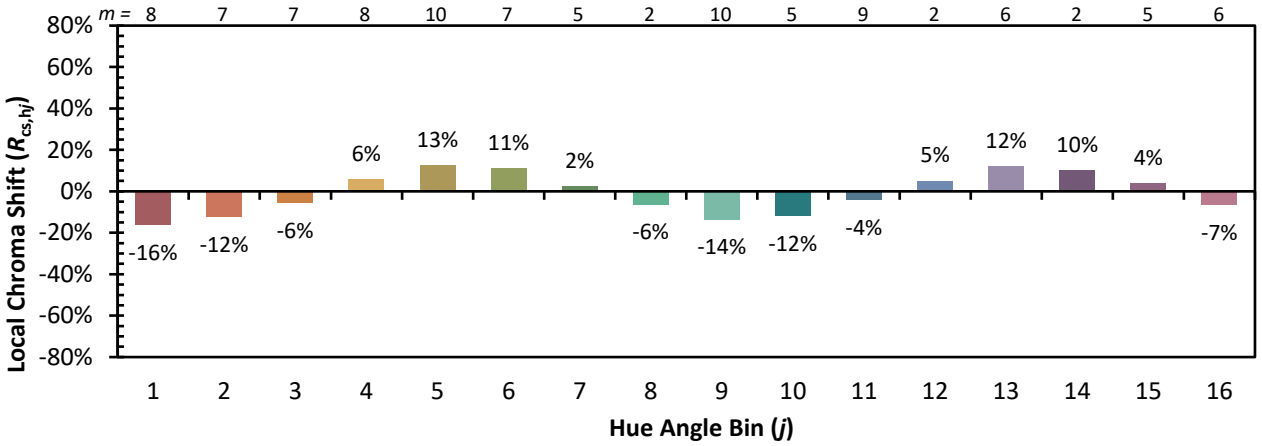
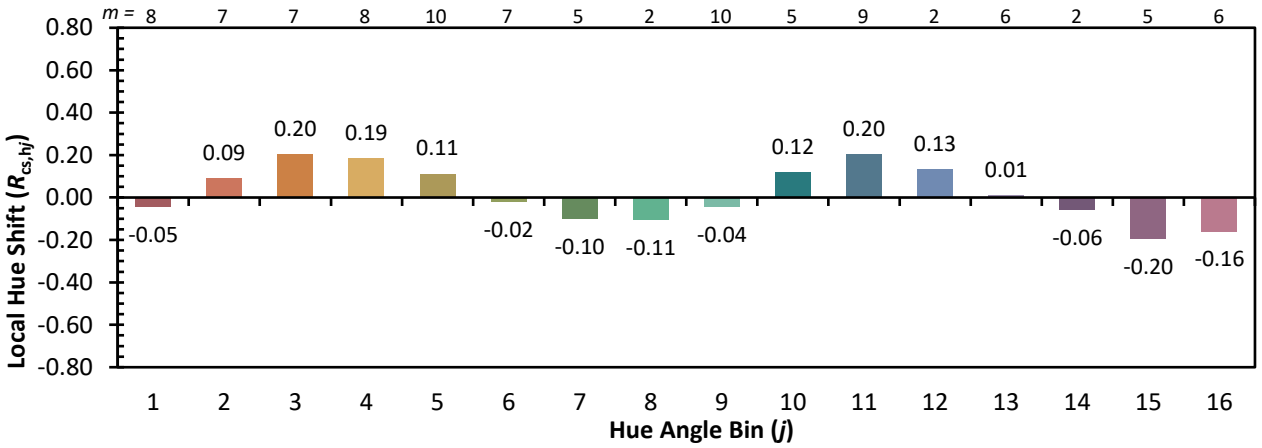
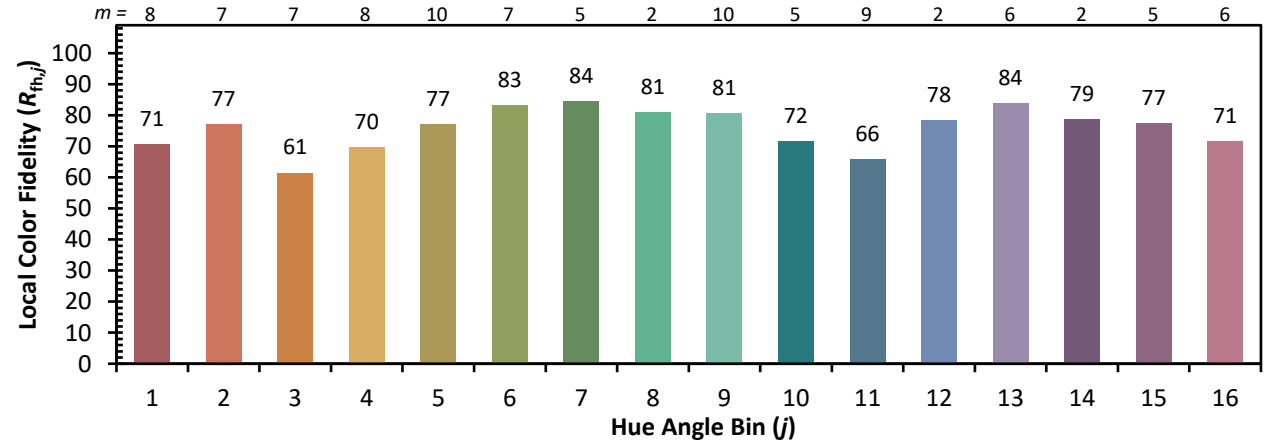
Color Rendition by Hue-Angle Bin







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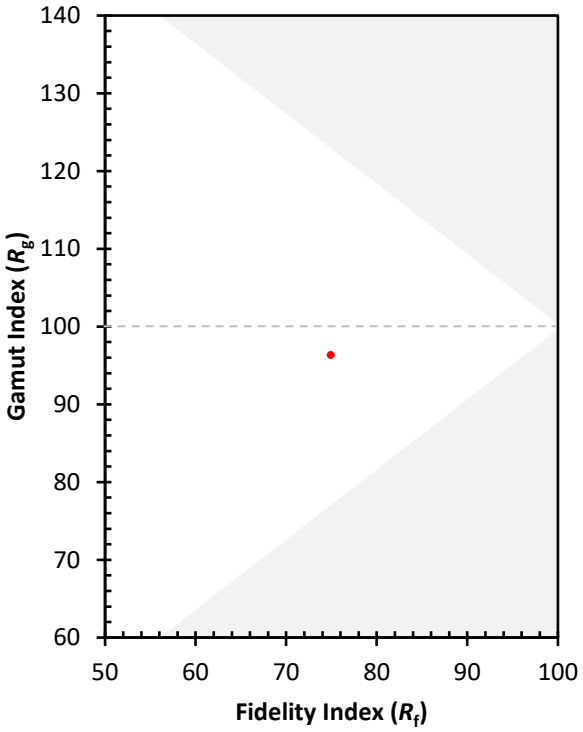
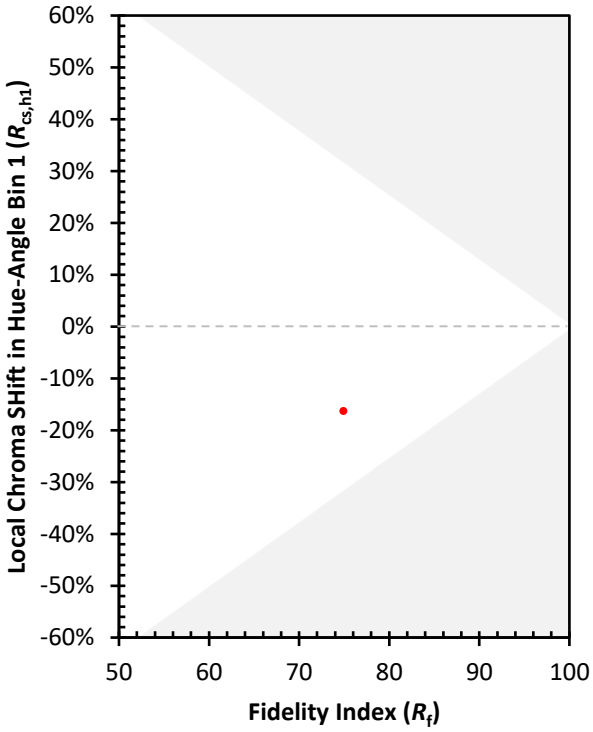
Measure Comparisons





(END OF REPORT)