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: P316328

Luminaire Tested: **GLEON-SA4C-830-U-5WQ**

Issue Date: 3/3/2020

Report Generated By E0585644

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:	P316328
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-2)
Test Lab:	INNOVATION CENTER
Issue Date:	3/3/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	GLEON-SA4C-830-U-5WQ
Description:	GALLEON AREA AND ROADWAY LUMINAIRE
	(4) 80 CRI, 3000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE V WIDE OPTICS
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	23881 lumens
Efficiency:	N/A
Efficacy:	106.1 lumens/watt
Luminous Opening:	Rectangular (W 1' x L: 1' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B5 - U0 - G3

Input Watts (W):	225
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:	24 FT

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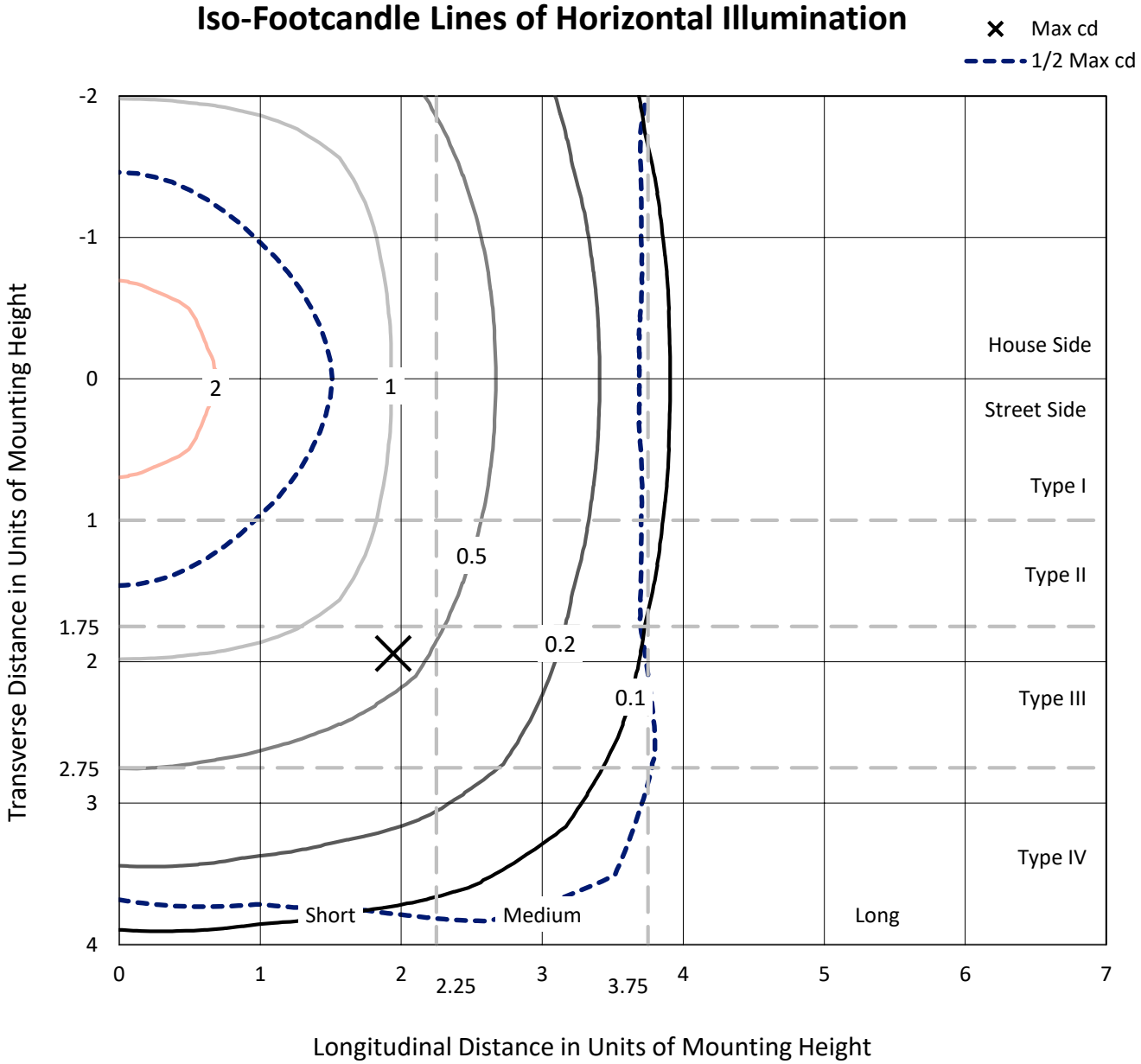
Scaled Data Report

REPORT NUMBER: P316328
CATALOG NUMBER: GLEON-SA4C-830-U-5WQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 3.1 fc
Type V - Short - N/A

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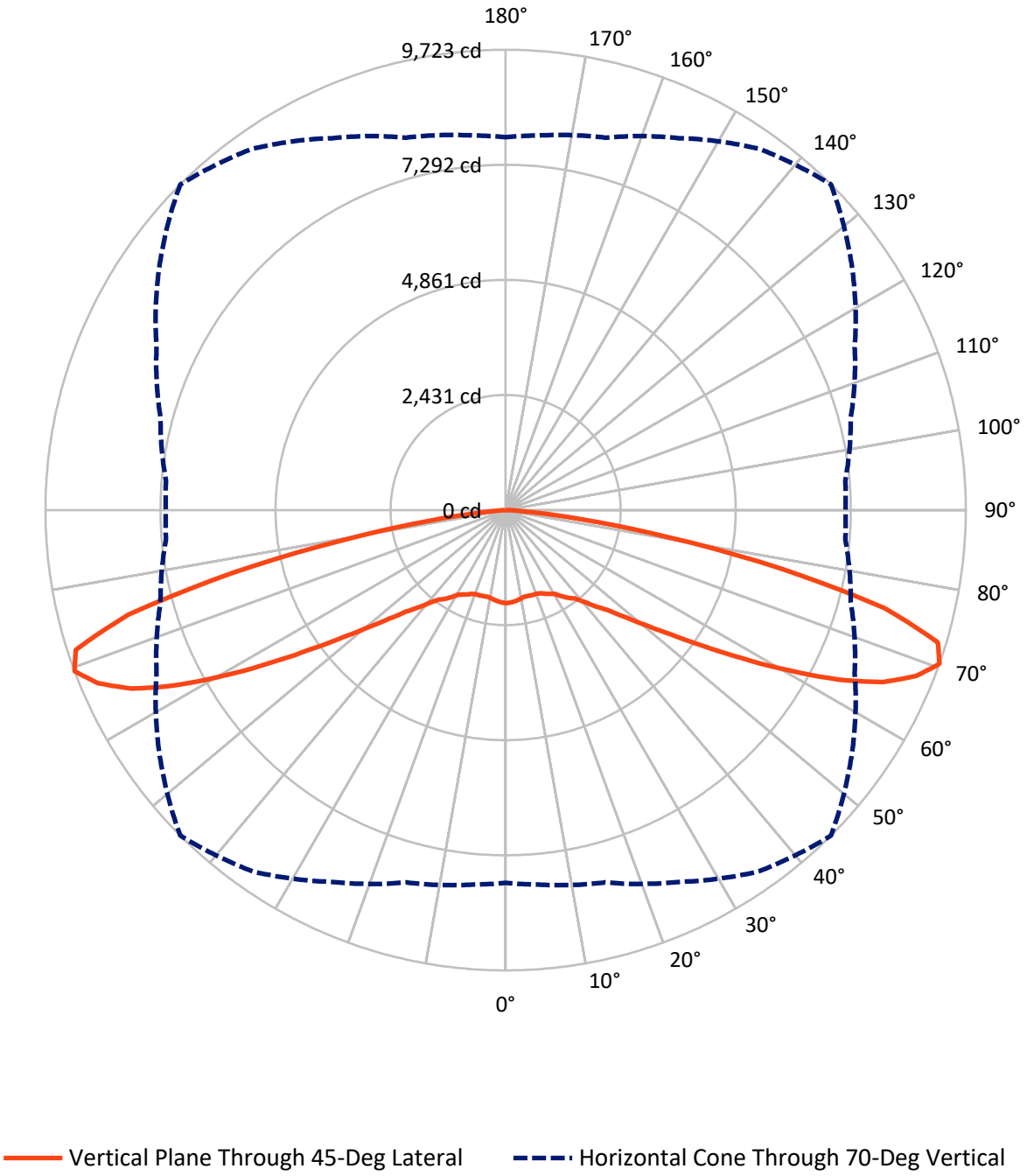
CATALOG NUMBER: GLEON-SA4C-830-U-5WQ

Luminous Intensity Polar Plot



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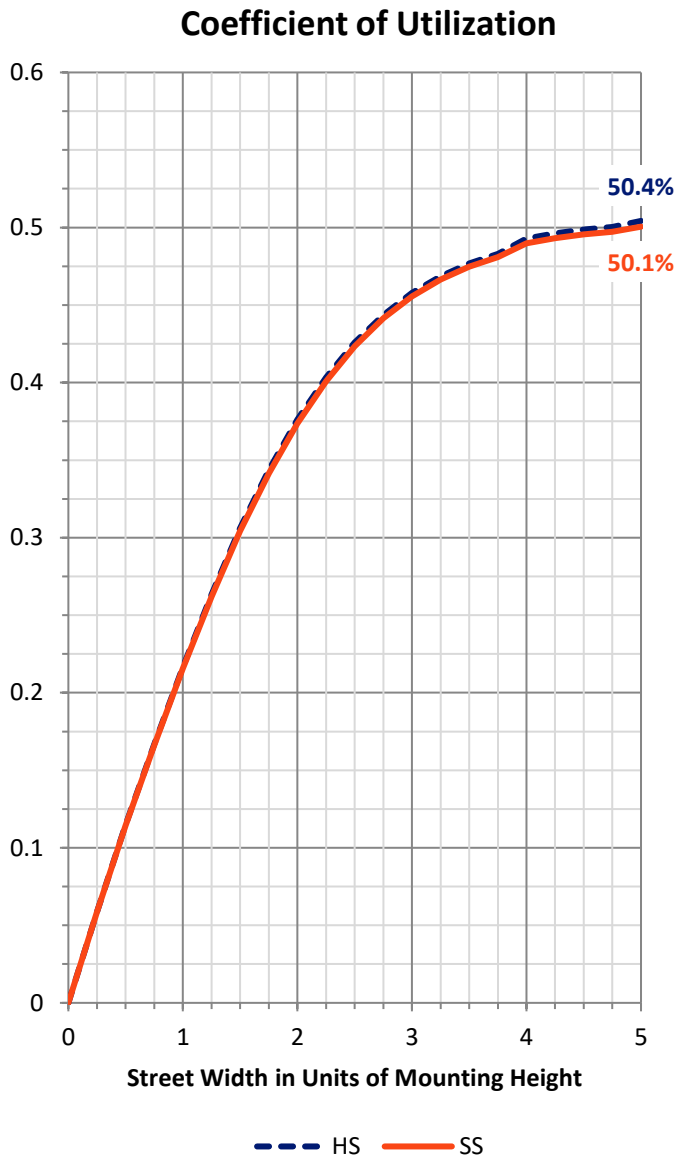
REPORT NUMBER: P316328
CATALOG NUMBER: GLEON-SA4C-830-U-5WQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	11940.5	0.0	11940.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	11940.5	0.0	11940.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	23881.0	0.0	23881.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	183.4	0.8
10°-20°	535.8	2.2
20°-30°	913.6	3.8
30°-40°	1427.5	6.0
40°-50°	2419.3	10.1
50°-60°	4411.7	18.5
60°-70°	7595.0	31.8
70°-80°	5953.3	24.9
80°-90°	441.4	1.8
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°	23881.0	100.0
0°-180°	23881.0	100.0



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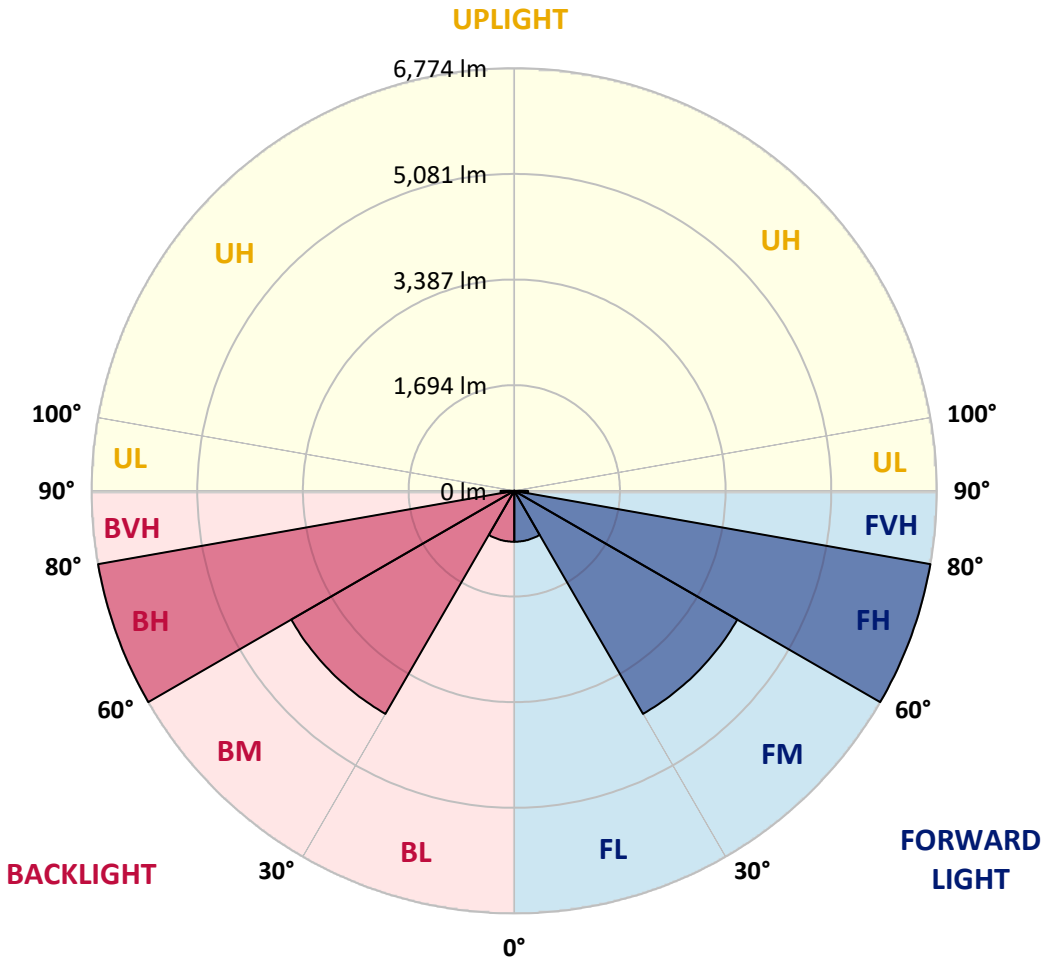
Scaled Data Report

REPORT NUMBER: P316328
CATALOG NUMBER: GLEON-SA4C-830-U-5WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	816.4	3.4			
FM	(30°-60°)	4129.2	17.3			
FH	(60°-80°)	6774.2	28.4			G3/7500
FVH	(80°-90°)	220.7	0.9			G2/225
BL	(0°-30°)	816.4	3.4	B2/1000		
BM	(30°-60°)	4129.2	17.3	B3/5000		
BH	(60°-80°)	6774.2	28.4	B5		G3/7500
BVH	(80°-90°)	220.7	0.9			G2/225
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B5-U0-G3
Type V Short



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Scaled Data Report

REPORT NUMBER: P316328
CATALOG NUMBER: GLEON-SA4C-830-U-5WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1965.4	1965.4	1965.4	1965.4	1965.4	*1965.4*	1965.4	1965.4	1965.4	1965.4	1965.4
2.5°	1956.7	1959.1	1956.7	1958.3	1954.4	*1955.9*	1955.9	1955.9	1955.1	1955.9	1954.4
5°	1939.3	1940.9	1937.8	1939.3	1937.0	*1939.3*	1940.1	1939.3	1937.8	1938.6	1935.4
7.5°	1913.3	1914.9	1912.5	1914.9	1911.7	*1915.6*	1914.9	1912.5	1910.1	1910.1	1907.0
10°	1899.1	1899.8	1893.5	1891.2	1884.0	*1885.6*	1888.0	1890.4	1892.7	1897.5	1896.7
12.5°	1899.8	1899.8	1890.4	1880.1	1869.8	*1872.2*	1876.1	1884.8	1894.3	1903.0	1903.8
15°	1907.7	1907.0	1892.7	1876.1	1869.0	*1876.1*	1878.5	1884.0	1899.1	1914.1	1914.9
17.5°	1913.3	1913.3	1891.2	1872.2	1871.4	*1882.5*	1881.7	1884.0	1900.6	1922.8	1923.5
20°	1923.5	1923.5	1895.1	1874.6	1874.6	*1886.4*	1887.2	1891.2	1907.7	1932.2	1936.2
22.5°	1946.5	1947.2	1917.2	1900.6	1902.2	*1909.3*	1911.7	1918.0	1933.0	1959.9	1964.6
25°	1978.8	1980.4	1949.6	1940.1	1945.7	*1959.1*	1957.5	1962.2	1978.8	2004.9	2009.6
27.5°	2023.9	2019.9	1991.5	1987.5	1993.1	*2002.5*	2001.7	2002.5	2016.0	2039.7	2045.2
30°	2082.3	2080.7	2060.2	2062.6	2060.2	*2057.0*	2057.8	2064.2	2071.3	2090.2	2095.8
32.5°	2139.2	2140.8	2128.1	2140.0	2157.4	*2169.2*	2151.0	2133.7	2125.8	2136.0	2140.8
35°	2241.9	2245.8	2226.1	2218.2	2241.9	*2276.7*	2225.3	2196.9	2212.7	2226.1	2230.0
37.5°	2416.5	2418.8	2385.7	2354.1	2336.7	*2369.9*	2318.5	2320.9	2376.2	2401.5	2400.7
40°	2615.5	2616.3	2594.2	2566.6	2536.5	*2544.4*	2523.9	2530.2	2566.6	2589.5	2595.8
42.5°	2852.5	2850.2	2815.4	2775.9	2767.2	*2775.1*	2740.4	2735.6	2777.5	2818.6	2819.4
45°	3159.8	3154.3	3109.3	3065.8	3024.0	*3006.6*	2997.9	3020.8	3078.5	3116.4	3117.2
47.5°	3490.8	3475.8	3452.1	3417.3	3381.0	*3363.6*	3349.4	3360.5	3402.3	3417.3	3418.9
50°	3831.3	3834.4	3839.2	3825.8	3812.3	*3806.8*	3769.7	3748.3	3761.0	3733.3	3729.4
52.5°	4235.0	4241.3	4287.1	4325.8	4348.7	*4360.6*	4290.2	4216.8	4175.7	4122.0	4106.2
55°	4711.3	4721.6	4788.7	4896.1	5006.7	*5065.2*	4938.0	4800.6	4673.4	4573.1	4540.7
57.5°	5242.1	5260.3	5352.7	5558.9	5785.6	*5923.9*	5709.0	5459.4	5213.7	5069.1	5043.9
60°	5864.6	5882.0	6010.0	6305.4	6672.8	*6880.5*	6555.1	6146.6	5840.9	5702.7	5656.1
62.5°	6605.6	6607.2	6764.4	7109.6	7594.6	*7883.8*	7443.0	6897.1	6581.9	6415.2	6370.2
65°	7402.7	7406.6	7569.4	7942.2	8443.8	*8758.2*	8260.6	7691.8	7306.3	7060.6	7025.9
67.5°	7965.9	7982.5	8153.9	8602.6	9071.9	*9355.4*	8840.4	8197.4	7751.8	7458.8	7429.5
70°	*7875.9*	*7940.6*	*8142.1*	*8665.8*	*9318.3*	*9722.8*	*8934.4*	*8137.3*	*7549.6*	*7203.6*	*7179.1*
72.5°	6868.7	6992.7	7261.3	7948.5	8992.1	*9549.0*	8421.7	7288.1	6623.0	6328.3	6284.1
75°	4677.3	4878.8	5284.0	6275.4	7682.3	*8267.7*	7089.9	5810.9	5185.3	4777.7	4747.6
77.5°	2085.5	2131.3	2644.8	3786.3	5301.4	*5937.3*	5151.3	3801.3	2853.3	2275.9	2154.2
80°	581.4	588.5	785.2	1410.1	2653.5	*3488.4*	2848.6	1481.2	832.6	586.9	553.0
82.5°	184.8	200.6	244.9	365.7	891.9	*1591.8*	915.6	395.0	281.2	224.3	202.2
85°	90.1	89.3	124.0	148.5	227.5	*352.3*	242.5	183.3	160.4	106.6	96.4
87.5°	37.9	38.7	57.7	52.1	66.4	*56.9*	78.2	82.2	86.1	47.4	41.1
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

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

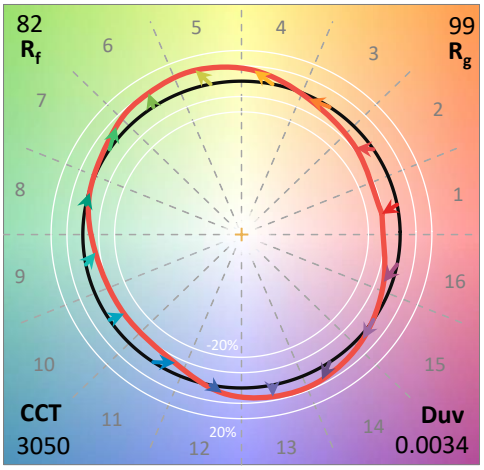
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2408-195-9
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	08/07/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	MCGRAW EDISON
Catalog Number:	**GALN-SB1A-830-U-5WQ**
Description:	GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K):	3050
CIE u':	0.2476
CIE v':	0.5251
Duv:	0.0034
CIE x:	0.4383
CIE y:	0.4131
CIE z:	0.1487
Peak Wavelength (nm):	603
Dominant Wavelength (nm):	581
Purity:	55.55201
Rf:	81.5
Rg:	99.2

CRI (Ra):	81.0
R1:	79.6
R2:	85.6
R3:	92.0
R4:	82.6
R5:	78.9
R6:	81.7
R7:	85.2
R8:	62.0
R9:	7.1
R10:	67.0
R11:	82.7
R12:	63.2
R13:	80.3
R14:	95.0
R15:	71.7



Test Conditions

Stabilization Time:	20M
Operation Time:	1H 20M
Sphere Temperature (°C):	24.2

REPORT NUMBER: SP1-2408-195-9

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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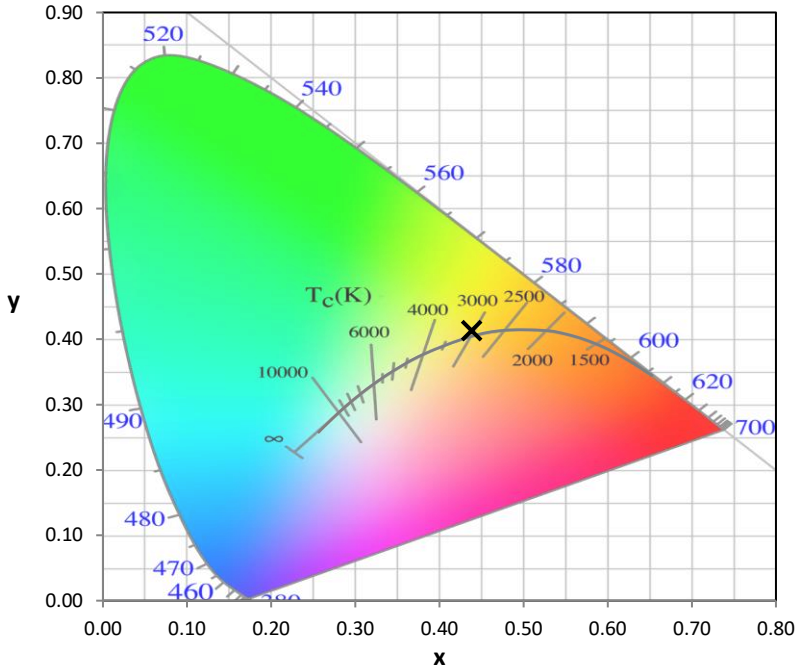
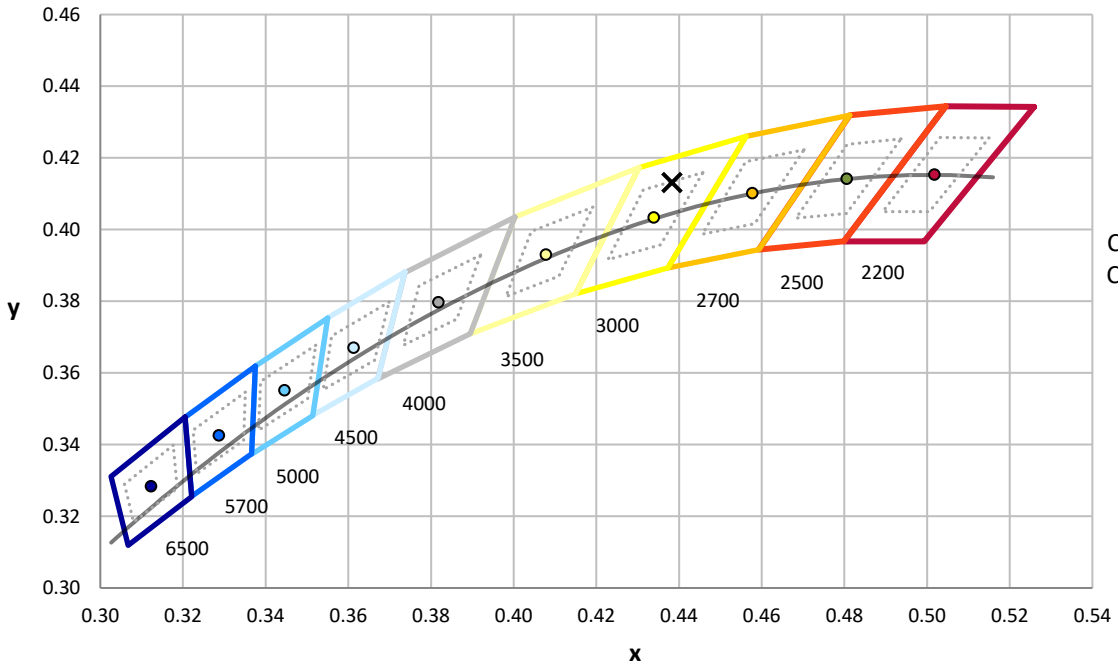
CIE 1931 Chromaticity Diagram



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



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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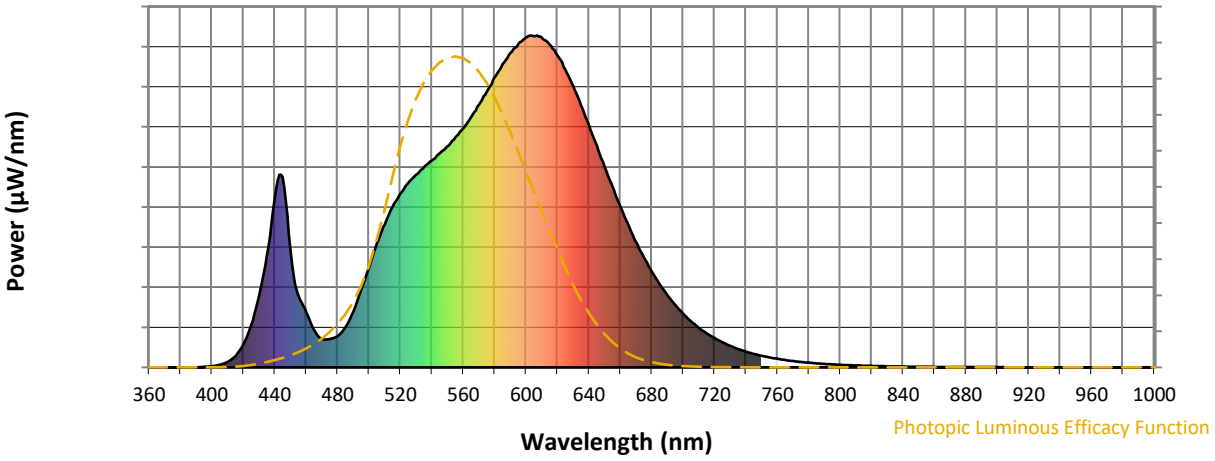
Photopic Flux vs. Wavelength

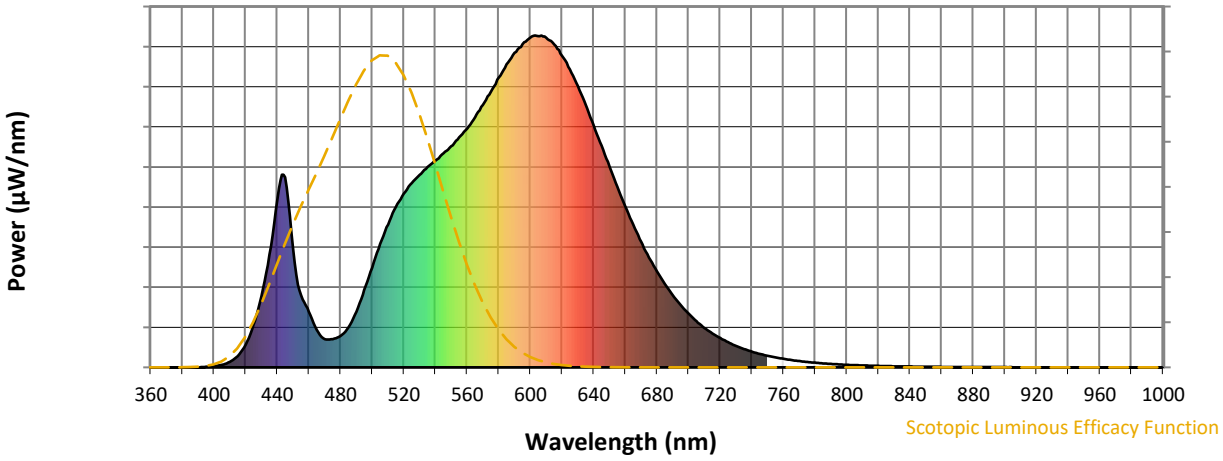


Photopic Lumens: NR

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	168	NR	620	940	NR	750	35	NR	880	1	NR
365	0	NR	495	233	NR	625	897	NR	755	30	NR	885	1	NR
370	0	NR	500	300	NR	630	847	NR	760	26	NR	890	1	NR
375	0	NR	505	372	NR	635	790	NR	765	22	NR	895	1	NR
380	0	NR	510	430	NR	640	730	NR	770	19	NR	900	1	NR
385	0	NR	515	483	NR	645	668	NR	775	16	NR	905	1	NR
390	0	NR	520	524	NR	650	605	NR	780	14	NR	910	0	NR
395	2	NR	525	555	NR	655	545	NR	785	12	NR	915	0	NR
400	4	NR	530	581	NR	660	485	NR	790	10	NR	920	0	NR
405	7	NR	535	604	NR	665	430	NR	795	9	NR	925	0	NR
410	17	NR	540	623	NR	670	378	NR	800	8	NR	930	0	NR
415	34	NR	545	645	NR	675	331	NR	805	7	NR	935	0	NR
420	68	NR	550	667	NR	680	290	NR	810	6	NR	940	0	NR
425	128	NR	555	693	NR	685	251	NR	815	5	NR	945	0	NR
430	214	NR	560	719	NR	690	218	NR	820	4	NR	950	0	NR
435	339	NR	565	754	NR	695	188	NR	825	4	NR	955	0	NR
440	507	NR	570	791	NR	700	162	NR	830	3	NR	960	0	NR
445	573	NR	575	830	NR	705	139	NR	835	3	NR	965	0	NR
450	356	NR	580	873	NR	710	119	NR	840	3	NR	970	0	NR
455	217	NR	585	913	NR	715	102	NR	845	2	NR	975	0	NR
460	168	NR	590	948	NR	720	88	NR	850	2	NR	980	0	NR
465	113	NR	595	974	NR	725	76	NR	855	2	NR	985	0	NR
470	85	NR	600	994	NR	730	65	NR	860	1	NR	990	0	NR
475	85	NR	605	998	NR	735	55	NR	865	1	NR	995	0	NR
480	94	NR	610	994	NR	740	47	NR	870	1	NR	1000	0	NR
485	120	NR	615	973	NR	745	41	NR	875	1	NR			

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.27**

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	168	NR	620	940	NR	750	35	NR	880	1	NR
365	0	NR	495	233	NR	625	897	NR	755	30	NR	885	1	NR
370	0	NR	500	300	NR	630	847	NR	760	26	NR	890	1	NR
375	0	NR	505	372	NR	635	790	NR	765	22	NR	895	1	NR
380	0	NR	510	430	NR	640	730	NR	770	19	NR	900	1	NR
385	0	NR	515	483	NR	645	668	NR	775	16	NR	905	1	NR
390	0	NR	520	524	NR	650	605	NR	780	14	NR	910	0	NR
395	2	NR	525	555	NR	655	545	NR	785	12	NR	915	0	NR
400	4	NR	530	581	NR	660	485	NR	790	10	NR	920	0	NR
405	7	NR	535	604	NR	665	430	NR	795	9	NR	925	0	NR
410	17	NR	540	623	NR	670	378	NR	800	8	NR	930	0	NR
415	34	NR	545	645	NR	675	331	NR	805	7	NR	935	0	NR
420	68	NR	550	667	NR	680	290	NR	810	6	NR	940	0	NR
425	128	NR	555	693	NR	685	251	NR	815	5	NR	945	0	NR
430	214	NR	560	719	NR	690	218	NR	820	4	NR	950	0	NR
435	339	NR	565	754	NR	695	188	NR	825	4	NR	955	0	NR
440	507	NR	570	791	NR	700	162	NR	830	3	NR	960	0	NR
445	573	NR	575	830	NR	705	139	NR	835	3	NR	965	0	NR
450	356	NR	580	873	NR	710	119	NR	840	3	NR	970	0	NR
455	217	NR	585	913	NR	715	102	NR	845	2	NR	975	0	NR
460	168	NR	590	948	NR	720	88	NR	850	2	NR	980	0	NR
465	113	NR	595	974	NR	725	76	NR	855	2	NR	985	0	NR
470	85	NR	600	994	NR	730	65	NR	860	1	NR	990	0	NR
475	85	NR	605	998	NR	735	55	NR	865	1	NR	995	0	NR
480	94	NR	610	994	NR	740	47	NR	870	1	NR	1000	0	NR
485	120	NR	615	973	NR	745	41	NR	875	1	NR			

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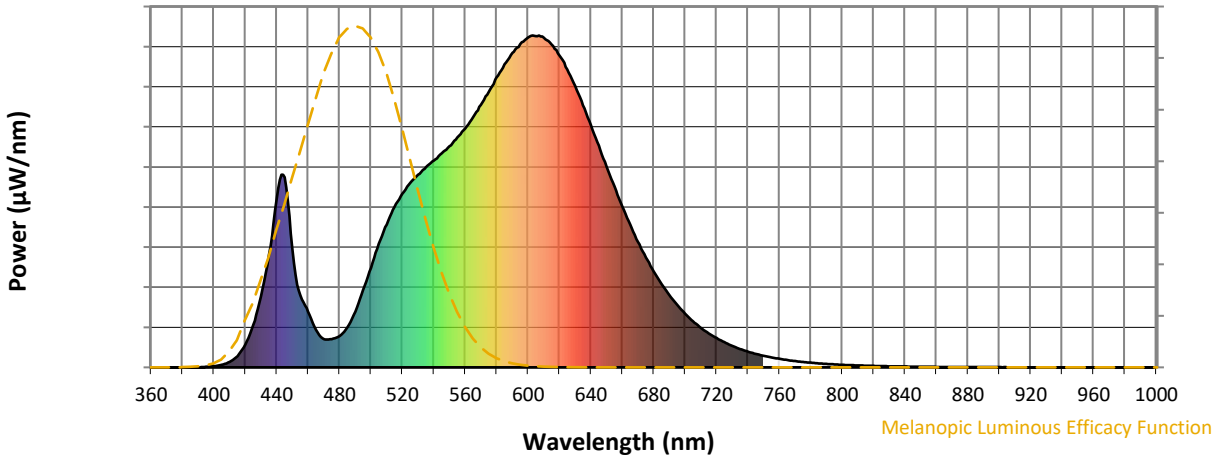
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.32**

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	168	NR	620	940	NR	750	35	NR	880	1	NR
365	0	NR	495	233	NR	625	897	NR	755	30	NR	885	1	NR
370	0	NR	500	300	NR	630	847	NR	760	26	NR	890	1	NR
375	0	NR	505	372	NR	635	790	NR	765	22	NR	895	1	NR
380	0	NR	510	430	NR	640	730	NR	770	19	NR	900	1	NR
385	0	NR	515	483	NR	645	668	NR	775	16	NR	905	1	NR
390	0	NR	520	524	NR	650	605	NR	780	14	NR	910	0	NR
395	2	NR	525	555	NR	655	545	NR	785	12	NR	915	0	NR
400	4	NR	530	581	NR	660	485	NR	790	10	NR	920	0	NR
405	7	NR	535	604	NR	665	430	NR	795	9	NR	925	0	NR
410	17	NR	540	623	NR	670	378	NR	800	8	NR	930	0	NR
415	34	NR	545	645	NR	675	331	NR	805	7	NR	935	0	NR
420	68	NR	550	667	NR	680	290	NR	810	6	NR	940	0	NR
425	128	NR	555	693	NR	685	251	NR	815	5	NR	945	0	NR
430	214	NR	560	719	NR	690	218	NR	820	4	NR	950	0	NR
435	339	NR	565	754	NR	695	188	NR	825	4	NR	955	0	NR
440	507	NR	570	791	NR	700	162	NR	830	3	NR	960	0	NR
445	573	NR	575	830	NR	705	139	NR	835	3	NR	965	0	NR
450	356	NR	580	873	NR	710	119	NR	840	3	NR	970	0	NR
455	217	NR	585	913	NR	715	102	NR	845	2	NR	975	0	NR
460	168	NR	590	948	NR	720	88	NR	850	2	NR	980	0	NR
465	113	NR	595	974	NR	725	76	NR	855	2	NR	985	0	NR
470	85	NR	600	994	NR	730	65	NR	860	1	NR	990	0	NR
475	85	NR	605	998	NR	735	55	NR	865	1	NR	995	0	NR
480	94	NR	610	994	NR	740	47	NR	870	1	NR	1000	0	NR
485	120	NR	615	973	NR	745	41	NR	875	1	NR			

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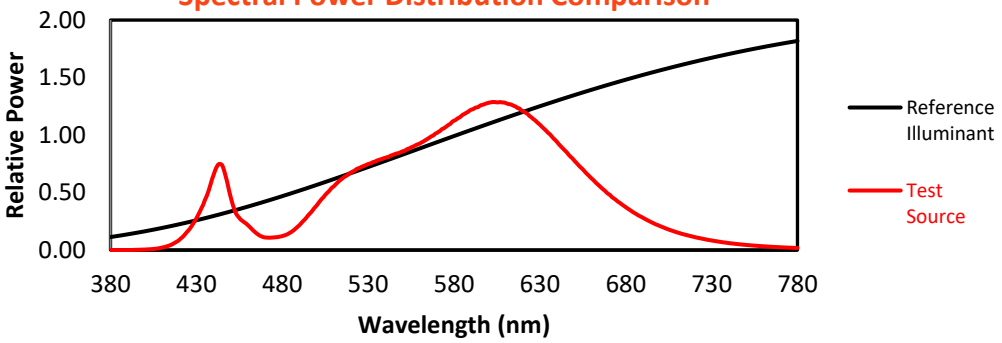
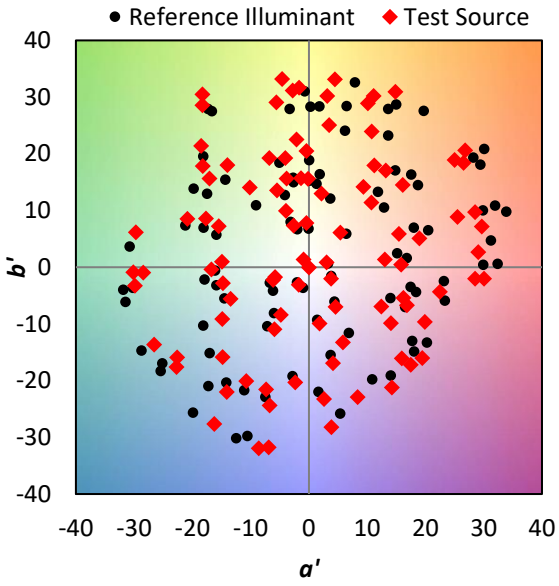
Summary

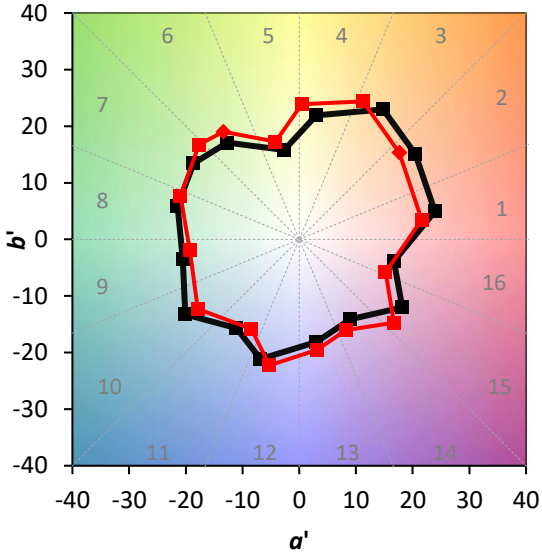
R_f = 81.5
R_g = 99.2
CIE R_a = 81.0
R_9 = 7.1

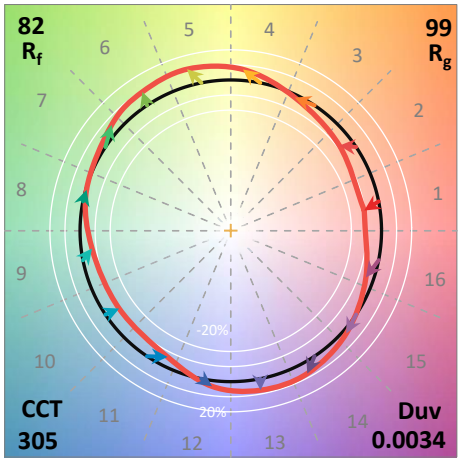
Spectral Power Distribution Comparison

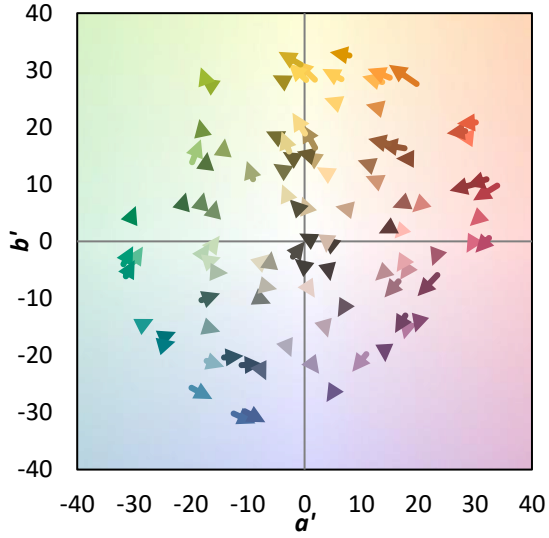


Color Vector Graphics









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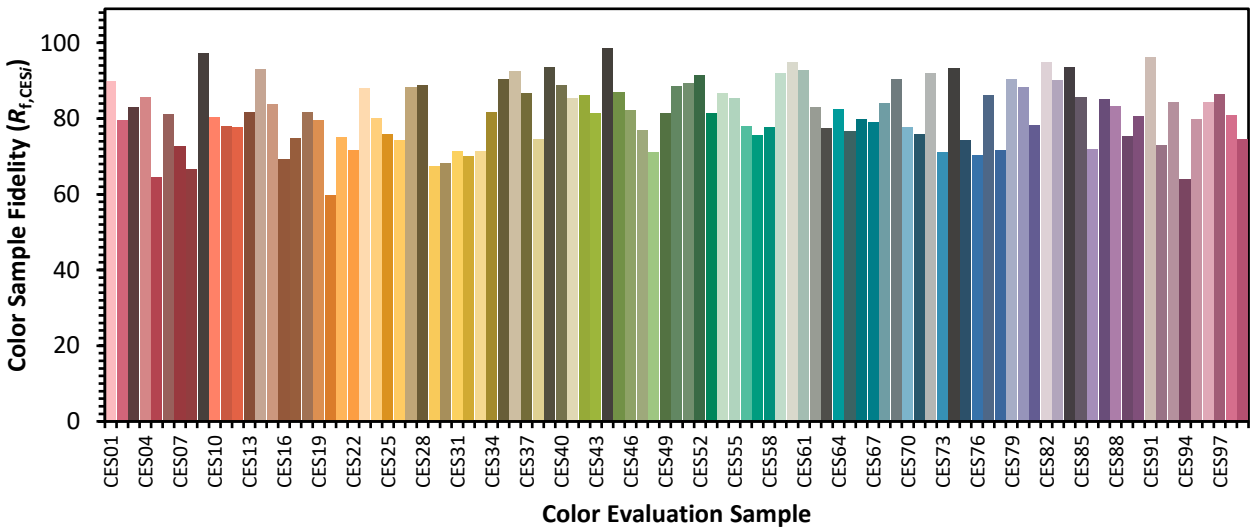
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 74	CES51 = 89	CES76 = 70
CES02 = 63	CES27 = 88	CES52 = 92	CES77 = 86
CES03 = 31	CES28 = 89	CES53 = 81	CES78 = 72
CES04 = 70	CES29 = 67	CES54 = 87	CES79 = 90
CES05 = 50	CES30 = 68	CES55 = 85	CES80 = 88
CES06 = 51	CES31 = 71	CES56 = 78	CES81 = 78
CES07 = 42	CES32 = 70	CES57 = 76	CES82 = 95
CES08 = 41	CES33 = 71	CES58 = 78	CES83 = 90
CES09 = 29	CES34 = 82	CES59 = 92	CES84 = 94
CES10 = 76	CES35 = 90	CES60 = 95	CES85 = 86
CES11 = 59	CES36 = 93	CES61 = 93	CES86 = 72
CES12 = 65	CES37 = 87	CES62 = 83	CES87 = 85
CES13 = 43	CES38 = 75	CES63 = 77	CES88 = 83
CES14 = 74	CES39 = 94	CES64 = 83	CES89 = 75
CES15 = 71	CES40 = 89	CES65 = 77	CES90 = 81
CES16 = 47	CES41 = 85	CES66 = 80	CES91 = 96
CES17 = 50	CES42 = 86	CES67 = 79	CES92 = 73
CES18 = 56	CES43 = 81	CES68 = 84	CES93 = 84
CES19 = 72	CES44 = 99	CES69 = 91	CES94 = 64
CES20 = 66	CES45 = 87	CES70 = 78	CES95 = 80
CES21 = 87	CES46 = 82	CES71 = 76	CES96 = 84
CES22 = 79	CES47 = 77	CES72 = 92	CES97 = 87
CES23 = 92	CES48 = 71	CES73 = 71	CES98 = 81
CES24 = 91	CES49 = 81	CES74 = 93	CES99 = 74
CES25 = 72	CES50 = 89	CES75 = 74	



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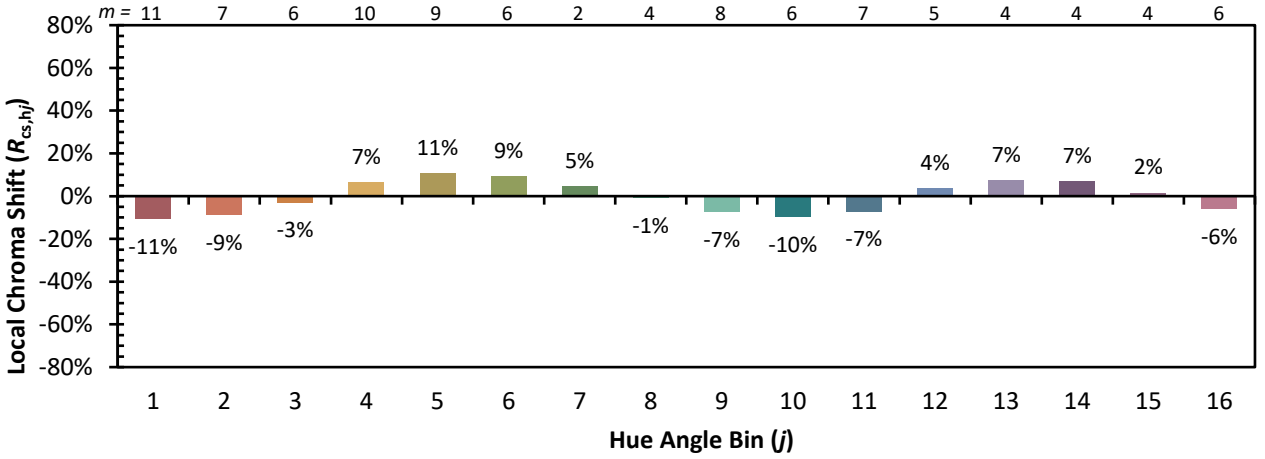
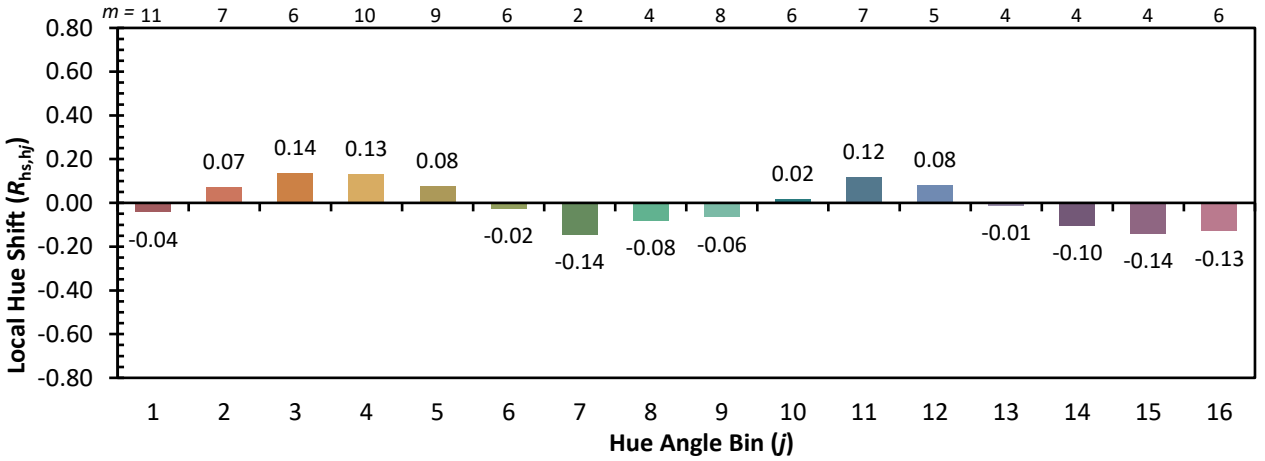
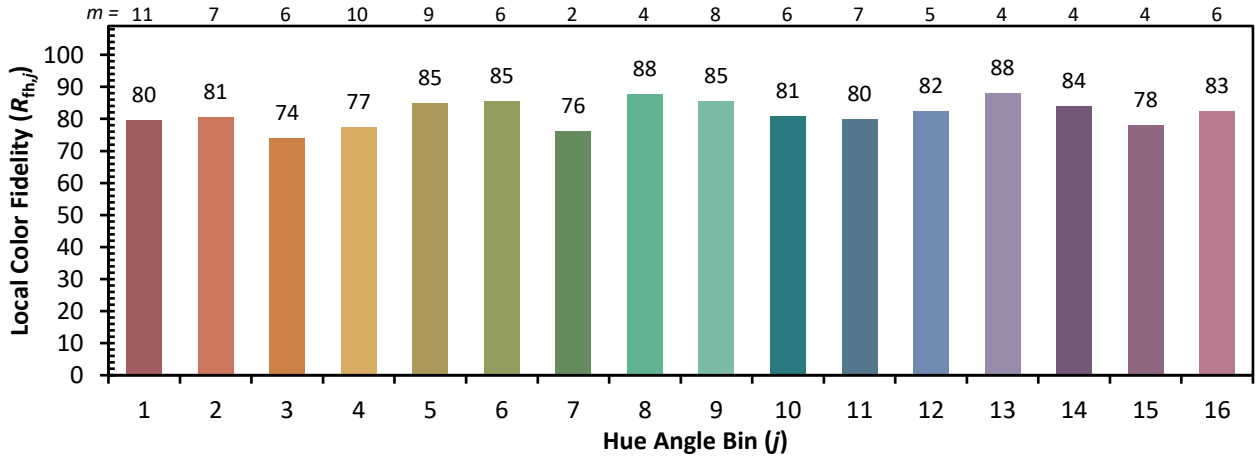
Color Rendition by Hue-Angle Bin







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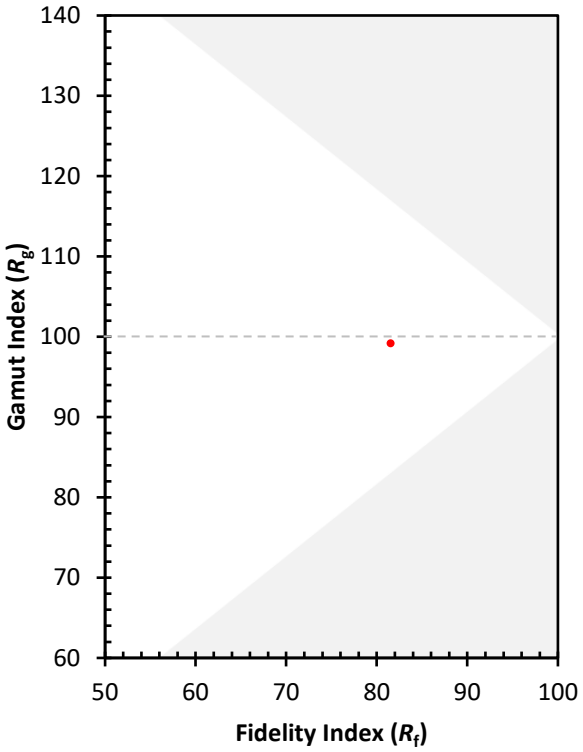
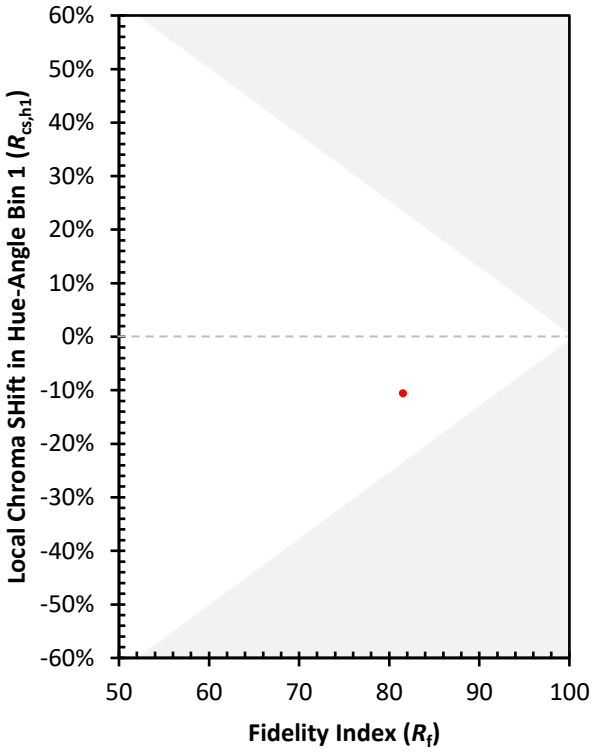
Measure Comparisons





(END OF REPORT)