

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P638866

Luminaire Tested: GWS-SA4F-760-U-SLL-W-HSS

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P638866  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-40)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA4F-760-U-SLL-W-HSS  
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND SPILL LIGHT ELIMINATOR LEFT OPTICS WITH HOUSE SIDE SHIELD  
Light Source: (64) 5700K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

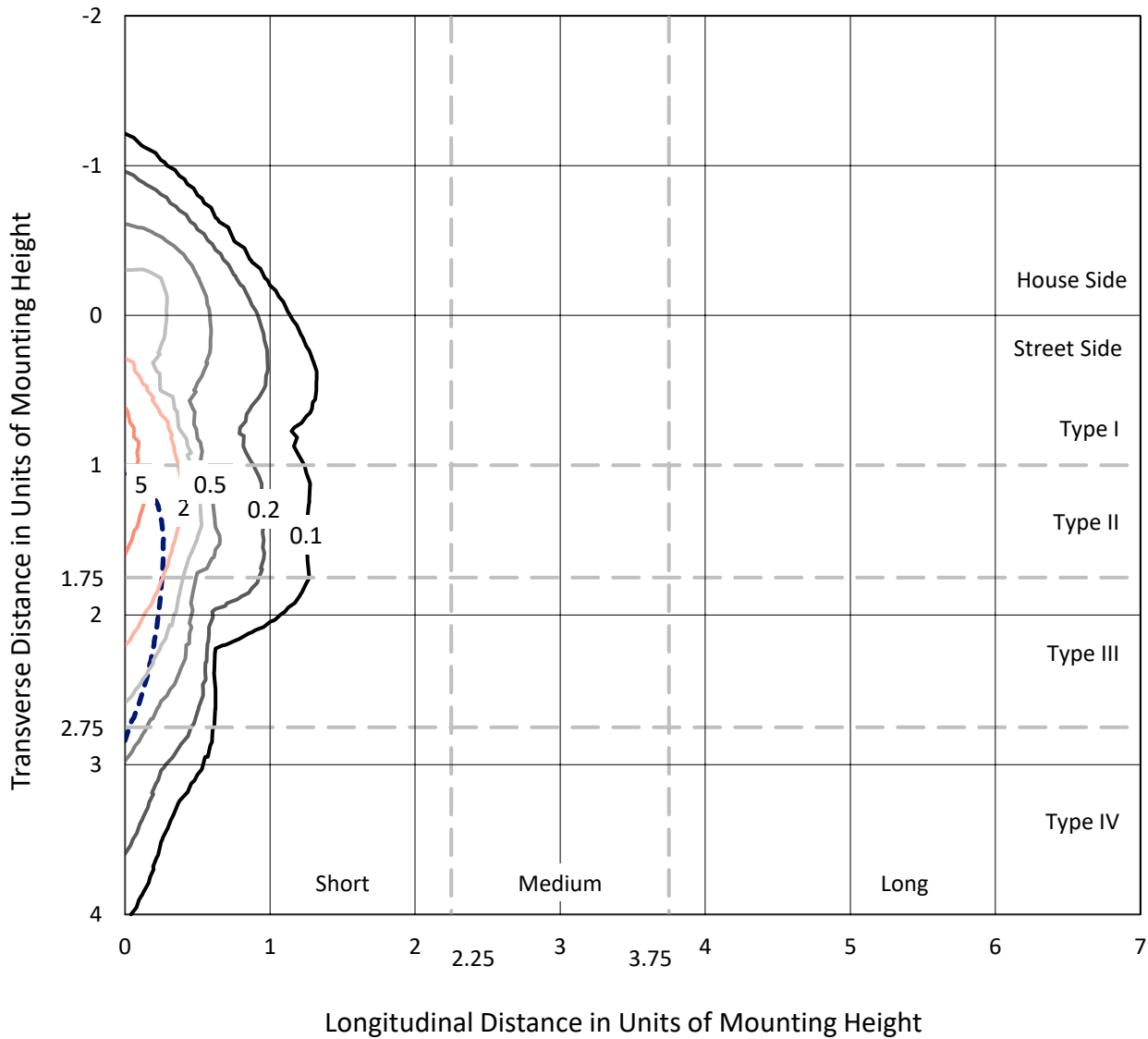
Lumens per Lamp: N/A  
Luminaire Lumens: 20784.1 lumens  
Efficiency: N/A  
Efficacy: 92.3 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B2 - U0 - G4  
  
Input Watts (W): 225.3  
Input Voltage (V): 120  
Input Current (Ain): NR  
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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### Iso-Footcandle Lines of Horizontal Illumination

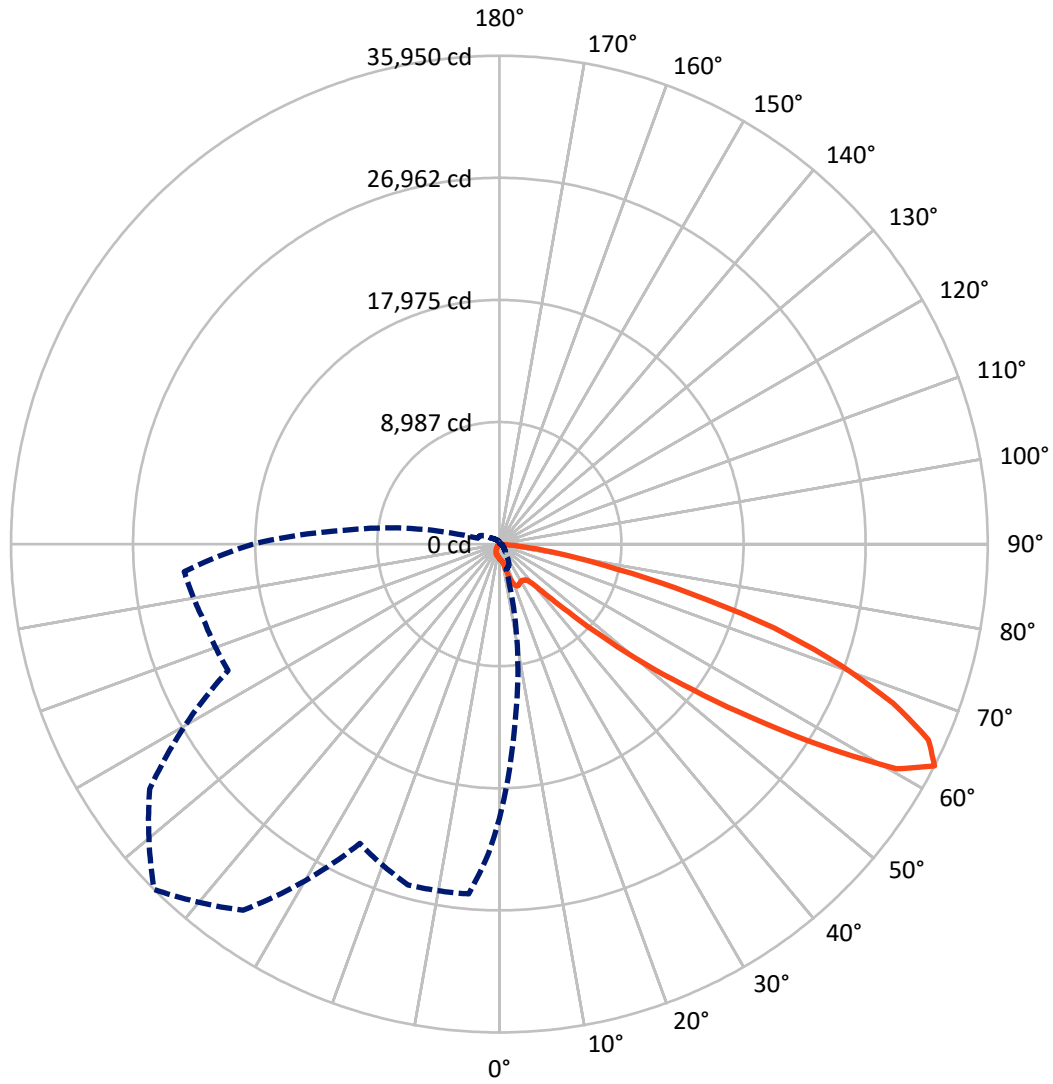
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.9 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 315-Deg Lateral    - - - Horizontal Cone Through 62.5-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	2414.8	0.0	2414.8
	% Fixture	11.6	0.0	11.6
<b>Street Side</b>	Lumens	18369.3	0.0	18369.3
	% Fixture	88.4	0.0	88.4
<b>Total</b>	Lumens	20784.1	0.0	20784.1
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	93.1	0.4
10°-20°	319.0	1.5
20°-30°	720.7	3.5
30°-40°	1241.6	6.0
40°-50°	2342.2	11.3
50°-60°	5229.5	25.2
60°-70°	6994.3	33.7
70°-80°	3507.5	16.9
80°-90°	336.2	1.6
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°	20784.1	100.0
0°-180°	20784.1	100.0

**Coefficient of Utilization**



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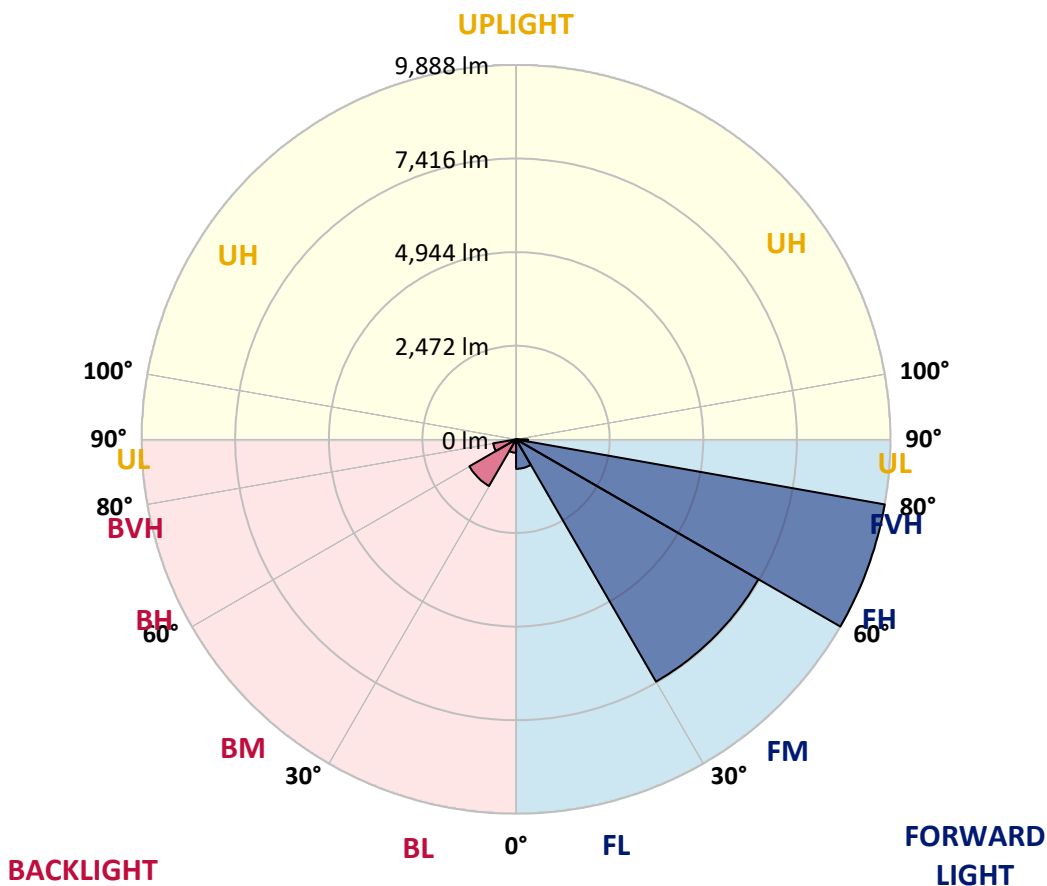
CATALOG NUMBER: GWS-SA4F-760-U-SLL-W-HSS

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	778.4	3.7			
FM (30°-60°)	7389.4	35.6			
FH (60°-80°)	9887.7	47.6			G4/12000
FVH (80°-90°)	313.8	1.5			G3/500
BL (0°-30°)	354.5	1.7	B1/500		
BM (30°-60°)	1423.9	6.9	B2/2500		
BH (60°-80°)	614.1	3.0	B2/1000		G2/1000
BVH (80°-90°)	22.4	0.1			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G4**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	2°	5°	15°	25°	35°	45°	55°	65°	75°	85°
0°	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9
2.5°	1065.6	1063.1	1058.2	1043.4	1031.1	1023.8	1009.0	1009.0	1006.5	1001.6	991.8
5°	1031.1	1021.3	1011.4	984.4	954.8	937.6	917.9	915.5	915.5	910.5	908.1
7.5°	977.0	967.2	954.8	910.5	883.5	866.3	849.0	846.6	839.2	839.2	839.2
10°	947.5	932.7	913.0	863.8	836.7	822.0	809.7	802.3	797.3	790.0	787.5
12.5°	1011.4	984.4	942.5	853.9	817.0	797.3	782.6	777.7	762.9	753.0	745.7
15°	1210.8	1144.3	1060.7	876.1	809.7	780.1	760.4	750.6	738.3	721.1	708.8
17.5°	1538.1	1442.1	1301.8	947.5	802.3	765.4	740.7	723.5	706.3	686.6	671.8
20°	1990.9	1848.2	1680.8	1077.9	802.3	748.1	718.6	696.4	671.8	649.7	632.5
22.5°	2566.8	2424.0	2138.6	1299.4	812.1	726.0	691.5	662.0	632.5	612.8	593.1
25°	3211.5	3009.7	2744.0	1567.6	839.2	696.4	659.5	630.0	602.9	578.3	556.2
27.5°	3930.1	3711.1	3356.7	1949.1	898.2	666.9	625.1	598.0	573.4	548.8	519.3
30°	4592.1	4461.7	4099.9	2406.8	994.2	647.2	598.0	573.4	548.8	516.8	489.7
32.5°	5387.0	5155.7	4857.9	2928.5	1122.2	627.5	575.9	541.4	521.7	492.2	462.7
35°	6186.8	5989.9	5598.6	3570.8	1264.9	607.9	548.8	516.8	499.6	465.1	433.1
37.5°	7011.2	6966.9	6580.6	4282.0	1405.2	585.7	516.8	497.1	479.9	440.5	403.6
40°	7823.3	7742.1	7385.3	5094.2	1491.3	561.1	489.7	477.4	457.7	413.4	371.6
42.5°	8601.0	8539.5	8192.5	5871.8	1479.0	538.9	462.7	447.9	433.1	388.8	337.1
45°	9555.8	9454.9	9016.9	6447.7	1353.5	563.6	435.6	411.0	408.5	366.7	302.7
47.5°	11342.5	11010.3	10267.1	6890.6	1228.0	627.5	406.1	376.5	393.8	344.5	268.2
50°	13845.3	13454.0	12378.5	7235.2	1225.5	711.2	401.1	344.5	381.4	327.3	238.7
52.5°	16360.4	15671.3	14364.5	7419.7	1316.6	772.7	445.4	312.5	366.7	310.1	216.6
55°	18769.6	17339.8	15196.3	6809.4	1388.0	839.2	526.6	295.3	339.6	290.4	204.3
57.5°	21065.7	18681.0	15558.1	5387.0	1626.7	866.3	575.9	302.7	300.2	265.8	194.4
60°	21380.7	18617.0	14827.2	3132.8	1794.0	819.5	556.2	337.1	263.3	236.3	177.2
62.5°	20189.6	17379.2	13161.1	1954.0	1666.1	802.3	494.6	383.9	238.7	209.2	155.0
65°	18380.8	15437.5	10973.3	1260.0	1262.5	890.9	433.1	376.5	223.9	184.6	132.9
67.5°	15553.2	12920.0	8645.3	844.1	713.7	760.4	379.0	258.4	219.0	157.5	103.4
70°	11352.3	9196.5	5628.2	563.6	425.7	607.9	317.5	184.6	206.7	130.4	73.8
72.5°	8298.3	6179.4	3142.6	369.1	241.2	354.4	233.8	132.9	160.0	96.0	51.7
75°	5972.7	4252.5	1794.0	236.3	160.0	194.4	152.6	91.1	103.4	76.3	46.8
77.5°	2874.4	2072.1	814.6	130.4	108.3	98.4	81.2	56.6	64.0	68.9	41.8
80°	108.3	81.2	61.5	64.0	68.9	44.3	36.9	29.5	36.9	46.8	22.1
82.5°	0.0	0.0	0.0	7.4	9.8	12.3	14.8	12.3	14.8	17.2	2.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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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**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9
2.5°	999.1	994.2	999.1	1004.1	1009.0	1013.9	1006.5	1011.4	1016.4	1004.1	1009.0
5°	920.4	917.9	932.7	940.1	949.9	954.8	949.9	949.9	947.5	932.7	932.7
7.5°	851.5	853.9	866.3	883.5	895.8	903.2	898.2	895.8	888.4	866.3	866.3
10°	799.8	799.8	819.5	834.3	851.5	858.9	853.9	846.6	839.2	817.0	814.6
12.5°	758.0	758.0	772.7	797.3	817.0	826.9	824.4	814.6	802.3	780.1	777.7
15°	718.6	716.1	738.3	760.4	787.5	799.8	794.9	787.5	765.4	745.7	740.7
17.5°	679.2	676.8	696.4	726.0	755.5	772.7	770.3	753.0	733.4	708.8	703.8
20°	639.8	634.9	659.5	689.1	718.6	735.8	730.9	716.1	691.5	666.9	662.0
22.5°	600.5	598.0	615.2	639.8	666.9	681.7	679.2	666.9	642.3	620.2	620.2
25°	556.2	556.2	568.5	585.7	605.4	612.8	615.2	610.3	595.5	583.2	583.2
27.5°	519.3	511.9	516.8	521.7	531.6	543.9	543.9	548.8	551.3	546.3	548.8
30°	489.7	477.4	470.0	460.2	455.3	460.2	465.1	482.3	499.6	509.4	514.3
32.5°	455.3	440.5	420.8	393.8	376.5	371.6	386.4	418.4	450.4	472.5	484.8
35°	420.8	401.1	364.2	324.8	302.7	295.3	312.5	349.5	396.2	435.6	452.8
37.5°	386.4	359.3	307.6	260.9	236.3	231.3	248.6	287.9	342.1	396.2	418.4
40°	347.0	315.0	253.5	204.3	184.6	179.6	194.4	233.8	290.4	351.9	386.4
42.5°	307.6	268.2	204.3	162.4	142.7	142.7	162.4	192.0	243.6	310.1	351.9
45°	268.2	226.4	167.3	130.4	118.1	120.6	132.9	162.4	204.3	273.2	312.5
47.5°	231.3	194.4	137.8	108.3	98.4	100.9	115.7	140.3	174.7	236.3	278.1
50°	199.3	164.9	120.6	91.1	83.7	88.6	103.4	125.5	155.0	209.2	243.6
52.5°	179.6	147.7	110.7	78.8	73.8	78.8	93.5	113.2	140.3	184.6	219.0
55°	169.8	145.2	110.7	71.4	64.0	68.9	83.7	103.4	125.5	167.3	196.9
57.5°	167.3	150.1	118.1	64.0	54.1	59.1	73.8	93.5	115.7	152.6	177.2
60°	157.5	142.7	115.7	51.7	41.8	49.2	61.5	81.2	105.8	142.7	164.9
62.5°	137.8	125.5	100.9	41.8	32.0	36.9	51.7	71.4	96.0	130.4	155.0
65°	113.2	100.9	78.8	27.1	19.7	24.6	39.4	61.5	83.7	118.1	140.3
67.5°	83.7	71.4	54.1	17.2	9.8	17.2	32.0	51.7	76.3	105.8	128.0
70°	51.7	41.8	29.5	9.8	7.4	14.8	29.5	49.2	68.9	98.4	120.6
72.5°	29.5	19.7	12.3	4.9	7.4	14.8	29.5	49.2	66.4	93.5	113.2
75°	22.1	12.3	4.9	2.5	4.9	12.3	27.1	44.3	64.0	88.6	108.3
77.5°	14.8	7.4	2.5	0.0	2.5	9.8	24.6	41.8	59.1	83.7	103.4
80°	2.5	0.0	0.0	0.0	0.0	7.4	22.1	36.9	54.1	73.8	91.1
82.5°	0.0	0.0	0.0	0.0	0.0	2.5	17.2	32.0	46.8	61.5	73.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	9.8	24.6	36.9	46.8	51.7
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	24.6	29.5	34.5
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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**CANDELA DISTRIBUTION (continued):**

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9
2.5°	1006.5	1021.3	1021.3	1031.1	1043.4	1065.6	1077.9	1095.1	1107.4	1119.7	1124.7
5°	930.2	932.7	935.2	940.1	954.8	979.5	1001.6	1028.7	1060.7	1085.3	1100.0
7.5°	866.3	866.3	866.3	873.6	888.4	905.6	927.8	964.7	1001.6	1031.1	1055.7
10°	812.1	819.5	822.0	834.3	851.5	873.6	898.2	930.2	972.1	1011.4	1055.7
12.5°	777.7	785.0	797.3	809.7	826.9	851.5	878.6	920.4	1006.5	1087.7	1181.3
15°	745.7	755.5	770.3	787.5	807.2	834.3	863.8	949.9	1151.7	1304.3	1452.0
17.5°	711.2	726.0	745.7	762.9	787.5	817.0	853.9	1021.3	1417.5	1671.0	1922.0
20°	666.9	686.6	708.8	735.8	765.4	799.8	853.9	1168.9	1801.4	2165.6	2497.9
22.5°	625.1	644.8	671.8	706.3	740.7	775.2	866.3	1392.9	2296.1	2756.3	3177.1
25°	590.6	615.2	642.3	671.8	711.2	750.6	895.8	1707.9	2891.6	3484.7	3782.5
27.5°	558.6	588.2	615.2	639.8	674.3	718.6	962.2	2128.7	3595.4	4198.4	4432.2
30°	526.6	561.1	588.2	612.8	647.2	694.0	1063.1	2665.2	4378.0	4963.7	4988.3
32.5°	499.6	531.6	563.6	588.2	620.2	674.3	1203.4	3292.7	5180.3	5746.3	5515.0
35°	470.0	507.0	536.5	563.6	598.0	657.1	1365.8	3969.5	5989.9	6464.9	6039.2
37.5°	440.5	482.3	519.3	538.9	573.4	639.8	1483.9	4675.8	6816.8	7166.3	6499.4
40°	413.4	460.2	502.0	521.7	538.9	617.7	1501.2	5399.3	7656.0	7857.8	6932.5
42.5°	383.9	435.6	472.5	499.6	514.3	602.9	1397.8	6009.6	8359.8	8546.9	7498.5
45°	351.9	413.4	443.0	462.7	492.2	612.8	1264.9	6482.1	9164.6	9486.9	8431.2
47.5°	319.9	388.8	413.4	428.2	467.6	671.8	1215.7	6797.1	10491.0	11160.4	10003.7
50°	290.4	366.7	393.8	391.3	462.7	748.1	1269.8	7035.8	12484.4	13271.9	12159.5
52.5°	258.4	342.1	374.1	364.2	499.6	807.2	1378.1	7225.3	14017.5	15747.6	15056.1
55°	231.3	315.0	344.5	342.1	568.5	851.5	1461.8	6226.2	14652.5	18048.6	18319.3
57.5°	211.6	285.5	310.1	351.9	612.8	851.5	1690.7	4419.9	14664.8	19741.7	22650.5
60°	194.4	258.4	275.6	386.4	595.5	807.2	1673.4	2707.0	13515.5	19626.0	24954.0
62.5°	179.6	233.8	255.9	396.2	526.6	799.8	1511.0	1678.4	11527.1	18132.2	23283.0
65°	167.3	214.1	246.1	364.2	477.4	856.4	1018.8	1205.9	9349.1	16429.3	21365.9
67.5°	155.0	196.9	260.9	297.8	433.1	765.4	735.8	856.4	7338.5	14561.4	19606.3
70°	145.2	187.0	275.6	243.6	379.0	598.0	521.7	649.7	5618.3	12149.7	17128.2
72.5°	137.8	174.7	231.3	192.0	307.6	462.7	364.2	472.5	3671.7	9484.5	13963.4
75°	130.4	160.0	169.8	155.0	228.9	302.7	275.6	317.5	2187.8	6932.5	10594.4
77.5°	128.0	150.1	137.8	125.5	155.0	179.6	209.2	214.1	1068.0	3467.5	5551.9
80°	113.2	135.4	118.1	103.4	105.8	118.1	155.0	142.7	243.6	881.0	1481.5
82.5°	88.6	105.8	98.4	86.1	86.1	86.1	103.4	96.0	78.8	396.2	669.4
85°	61.5	73.8	73.8	68.9	66.4	66.4	64.0	61.5	22.1	24.6	36.9
87.5°	41.8	51.7	54.1	51.7	44.3	39.4	34.5	29.5	9.8	0.0	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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**CANDELA DISTRIBUTION (continued):**

	285°	295°	305°	315°	325°	335°	345°	355°	358°	360°
0°	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9
2.5°	1141.9	1149.3	1149.3	1139.4	1132.0	1112.3	1092.7	1073.0	1068.0	1065.6
5°	1141.9	1171.4	1186.2	1183.7	1166.5	1134.5	1092.7	1048.4	1036.1	1031.1
7.5°	1124.7	1181.3	1225.5	1232.9	1200.9	1144.3	1068.0	1001.6	984.4	977.0
10°	1164.0	1274.8	1363.4	1375.7	1338.8	1228.0	1105.0	991.8	964.7	947.5
12.5°	1375.7	1557.8	1666.1	1717.7	1646.4	1506.1	1301.8	1100.0	1038.5	1011.4
15°	1803.9	2062.3	2269.0	2269.0	2202.5	1954.0	1695.6	1368.3	1284.6	1210.8
17.5°	2352.7	2677.5	2859.6	2839.9	2739.0	2564.3	2254.2	1784.2	1614.4	1538.1
20°	2977.7	3172.2	3214.0	3201.7	3157.4	3056.5	2842.4	2337.9	2109.0	1990.9
22.5°	3519.1	3467.5	3405.9	3356.7	3344.4	3374.0	3344.4	2955.6	2775.9	2566.8
25°	3885.8	3593.0	3408.4	3319.8	3361.6	3531.5	3716.0	3570.8	3428.1	3211.5
27.5°	4085.2	3578.2	3312.4	3221.4	3292.7	3533.9	3935.0	4181.1	4033.5	3930.1
30°	4193.4	3565.9	3250.9	3162.3	3270.6	3573.3	4087.6	4752.1	4757.0	4592.1
32.5°	4348.5	3644.7	3263.2	3182.0	3327.2	3691.4	4279.6	5332.9	5475.6	5387.0
35°	4523.2	3765.2	3319.8	3246.0	3425.6	3848.9	4493.7	5918.6	6216.3	6186.8
37.5°	4688.1	3900.6	3452.7	3381.3	3575.8	3984.3	4700.4	6494.4	6907.9	7011.2
40°	4860.4	4090.1	3861.2	3930.1	4038.4	4198.4	4885.0	6994.0	7668.3	7823.3
42.5°	5266.4	4747.2	5096.6	5227.0	5241.8	4912.0	5288.6	7633.8	8416.4	8601.0
45°	6172.0	5916.1	6917.7	7102.3	7006.3	6007.2	6260.6	8556.7	9462.3	9555.8
47.5°	7316.4	7434.5	9410.6	10048.0	9472.2	7299.2	7439.4	10498.4	11376.9	11342.5
50°	8650.2	9208.9	12240.7	13744.4	12366.2	8977.5	8797.9	12885.5	13951.1	13845.3
52.5°	10227.7	11271.1	15641.8	17777.9	16473.6	10865.1	10791.2	16047.8	16697.5	16360.4
55°	12213.7	13262.0	19554.7	22539.8	20684.2	13168.5	13422.0	19714.6	19840.1	18769.6
57.5°	15176.6	15858.3	24166.5	28000.6	25079.5	16298.8	18137.2	24594.7	23093.5	21065.7
60°	20556.3	19197.8	28623.2	33587.0	29755.3	20701.5	24356.0	27486.3	24176.3	21380.7
62.5°	22429.0	22032.8	31413.9	35949.5	32900.4	24316.6	25972.8	25847.3	22773.6	20189.6
65°	19591.6	21326.5	30914.4	34701.8	32496.8	23721.0	23307.6	24038.5	21193.6	18380.8
67.5°	18097.8	19667.9	29021.9	31258.9	30259.8	21700.6	20775.3	20575.9	17792.6	15553.2
70°	16591.7	18147.0	26278.0	26556.0	26090.9	18407.9	17192.2	15855.9	13298.9	11352.3
72.5°	14780.4	15636.8	22470.9	21151.8	20625.2	14458.0	14202.1	11940.5	9969.3	8298.3
75°	12890.4	12641.9	17519.5	14517.1	14910.9	11249.0	11994.6	8768.3	7304.1	5972.7
77.5°	9376.2	9191.6	11733.8	8817.6	9765.0	7368.1	6619.9	3499.5	3332.1	2874.4
80°	5232.0	6307.4	6336.9	4941.6	6164.7	4803.8	1656.2	115.7	73.8	108.3
82.5°	2431.4	2712.0	3435.5	2291.1	3516.7	2379.7	342.1	0.0	0.0	0.0
85°	787.5	1151.7	964.7	337.1	851.5	804.7	56.6	0.0	0.0	0.0
87.5°	46.8	96.0	24.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

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

**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-9-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-760-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

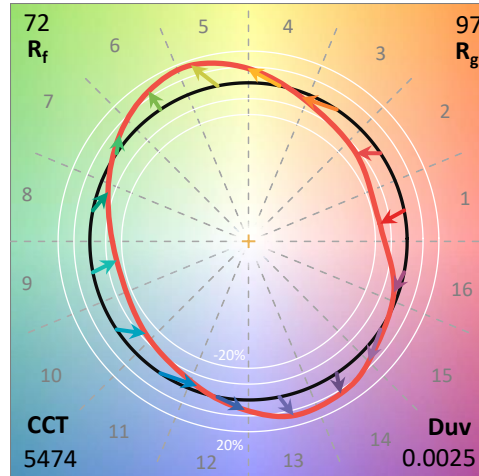
\*\*\*THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

**Spectral Parameters**

CCT (K): 5474  
 CIE u': 0.2052  
 CIE v': 0.4804  
 Duv: 0.0025  
 CIE x: 0.3330  
 CIE y: 0.3466  
 CIE z: 0.3204  
 Peak Wavelength (nm): 442  
 Dominant Wavelength (nm): 554  
 Purity: 4.1

CRI (Ra):	71.7		
R1:	70.6	R9:	-27.1
R2:	74.6	R10:	40.8
R3:	78.3	R11:	74.6
R4:	73.8	R12:	50.4
R5:	72.4	R13:	70.0
R6:	67.5	R14:	87.8
R7:	77.5		
R8:	58.9		

Rf: 72.1  
 Rg: 97.2



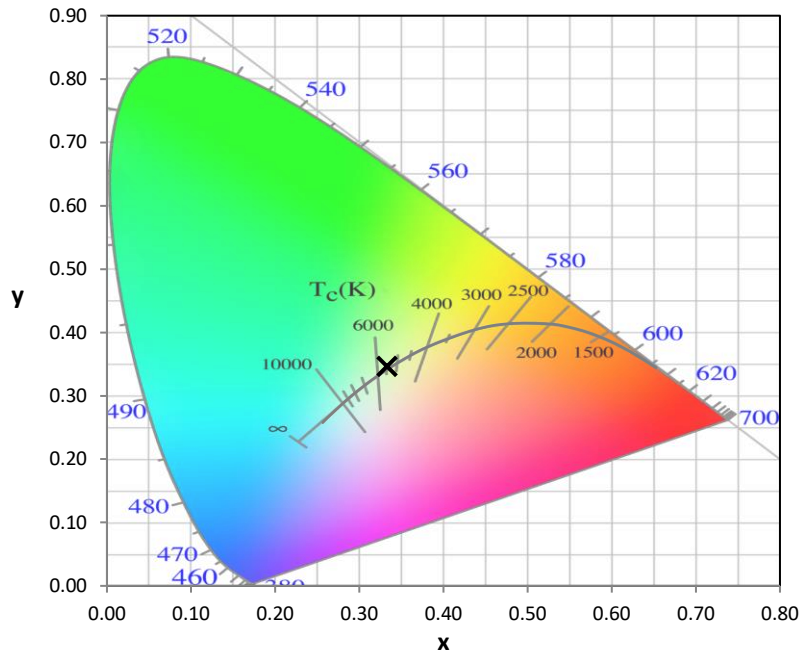
**Test Conditions**  
 Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.6/31%  
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-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

REPORT NUMBER: SP1-1908-441-9-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-9-R4

**Photopic Flux vs. Wavelength**



#####

$\lambda$ (nm)	Power ( $\mu\text{W}/\text{nm}$ )	Lumens ( $\phi/\text{nm}$ )	$\lambda$ (nm)	Power ( $\mu\text{W}/\text{nm}$ )	Lumens ( $\phi/\text{nm}$ )	$\lambda$ (nm)	Power ( $\mu\text{W}/\text{nm}$ )	Lumens ( $\phi/\text{nm}$ )	$\lambda$ (nm)	Power ( $\mu\text{W}/\text{nm}$ )	Lumens ( $\phi/\text{nm}$ )	$\lambda$ (nm)	Power ( $\mu\text{W}/\text{nm}$ )	Lumens ( $\phi/\text{nm}$ )
360	3540	NR	490	33363	NR	620	80193	NR	750	4663	NR	880	4678	NR
365	2862	NR	495	44177	NR	625	73091	NR	755	4147	NR	885	4128	NR
370	2865	NR	500	57019	NR	630	66269	NR	760	4040	NR	890	4504	NR
375	3254	NR	505	70030	NR	635	60012	NR	765	3474	NR	895	4371	NR
380	3076	NR	510	81972	NR	640	53914	NR	770	3469	NR	900	4082	NR
385	2904	NR	515	92590	NR	645	48385	NR	775	3181	NR	905	2982	NR
390	2689	NR	520	100305	NR	650	43219	NR	780	2969	NR	910	4351	NR
395	2619	NR	525	107452	NR	655	38562	NR	785	3132	NR	915	3365	NR
400	2679	NR	530	111373	NR	660	34110	NR	790	2507	NR	920	3430	NR
405	3515	NR	535	114505	NR	665	30085	NR	795	2968	NR	925	4264	NR
410	6934	NR	540	116408	NR	670	26205	NR	800	2758	NR	930	4095	NR
415	14943	NR	545	118700	NR	675	22906	NR	805	2872	NR	935	5048	NR
420	31939	NR	550	119209	NR	680	20058	NR	810	3094	NR	940	4074	NR
425	64701	NR	555	120742	NR	685	17413	NR	815	3222	NR	945	4949	NR
430	110939	NR	560	121594	NR	690	15447	NR	820	3238	NR	950	4387	NR
435	164597	NR	565	121913	NR	695	13398	NR	825	3524	NR	955	4978	NR
440	207696	NR	570	122147	NR	700	11777	NR	830	2921	NR	960	4706	NR
445	201830	NR	575	121605	NR	705	10412	NR	835	3595	NR	965	5083	NR
450	145410	NR	580	120248	NR	710	9544	NR	840	3016	NR	970	4522	NR
455	89594	NR	585	117717	NR	715	8940	NR	845	4032	NR	975	4740	NR
460	58321	NR	590	114359	NR	720	7897	NR	850	3579	NR	980	6122	NR
465	39318	NR	595	109974	NR	725	7045	NR	855	4571	NR	985	6450	NR
470	27693	NR	600	105269	NR	730	6483	NR	860	4485	NR	990	4875	NR
475	23081	NR	605	99453	NR	735	5838	NR	865	3978	NR	995	4764	NR
480	23002	NR	610	92921	NR	740	5261	NR	870	4298	NR	1000	3640	NR
485	26201	NR	615	86989	NR	745	4760	NR	875	4356	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

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	3540	NR	490	33363	NR	620	80193	NR	750	4663	NR	880	4678	NR
365	2862	NR	495	44177	NR	625	73091	NR	755	4147	NR	885	4128	NR
370	2865	NR	500	57019	NR	630	66269	NR	760	4040	NR	890	4504	NR
375	3254	NR	505	70030	NR	635	60012	NR	765	3474	NR	895	4371	NR
380	3076	NR	510	81972	NR	640	53914	NR	770	3469	NR	900	4082	NR
385	2904	NR	515	92590	NR	645	48385	NR	775	3181	NR	905	2982	NR
390	2689	NR	520	100305	NR	650	43219	NR	780	2969	NR	910	4351	NR
395	2619	NR	525	107452	NR	655	38562	NR	785	3132	NR	915	3365	NR
400	2679	NR	530	111373	NR	660	34110	NR	790	2507	NR	920	3430	NR
405	3515	NR	535	114505	NR	665	30085	NR	795	2968	NR	925	4264	NR
410	6934	NR	540	116408	NR	670	26205	NR	800	2758	NR	930	4095	NR
415	14943	NR	545	118700	NR	675	22906	NR	805	2872	NR	935	5048	NR
420	31939	NR	550	119209	NR	680	20058	NR	810	3094	NR	940	4074	NR
425	64701	NR	555	120742	NR	685	17413	NR	815	3222	NR	945	4949	NR
430	110939	NR	560	121594	NR	690	15447	NR	820	3238	NR	950	4387	NR
435	164597	NR	565	121913	NR	695	13398	NR	825	3524	NR	955	4978	NR
440	207696	NR	570	122147	NR	700	11777	NR	830	2921	NR	960	4706	NR
445	201830	NR	575	121605	NR	705	10412	NR	835	3595	NR	965	5083	NR
450	145410	NR	580	120248	NR	710	9544	NR	840	3016	NR	970	4522	NR
455	89594	NR	585	117717	NR	715	8940	NR	845	4032	NR	975	4740	NR
460	58321	NR	590	114359	NR	720	7897	NR	850	3579	NR	980	6122	NR
465	39318	NR	595	109974	NR	725	7045	NR	855	4571	NR	985	6450	NR
470	27693	NR	600	105269	NR	730	6483	NR	860	4485	NR	990	4875	NR
475	23081	NR	605	99453	NR	735	5838	NR	865	3978	NR	995	4764	NR
480	23002	NR	610	92921	NR	740	5261	NR	870	4298	NR	1000	3640	NR
485	26201	NR	615	86989	NR	745	4760	NR	875	4356	NR			



REPORT NUMBER: SP1-1908-441-9-R4

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5527.6 M/P: 0.74**

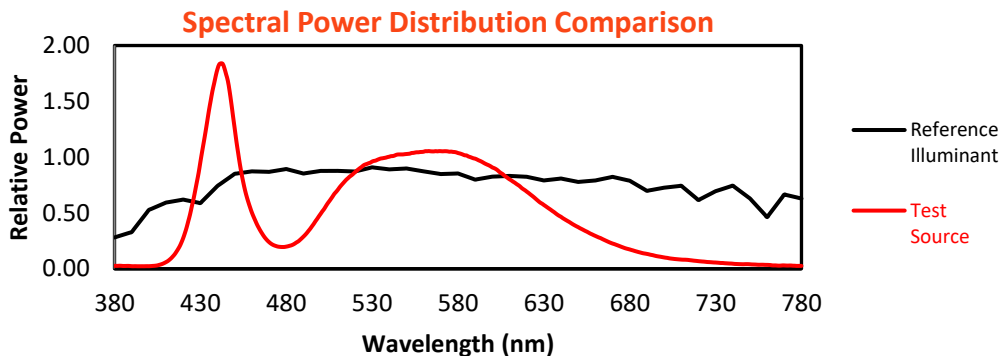
λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)	λ (nm)	Power (µW/nm)	Lumens (φ/nm)
360	3540	NR	490	33363	NR	620	80193	NR	750	4663	NR	880	4678	NR
365	2862	NR	495	44177	NR	625	73091	NR	755	4147	NR	885	4128	NR
370	2865	NR	500	57019	NR	630	66269	NR	760	4040	NR	890	4504	NR
375	3254	NR	505	70030	NR	635	60012	NR	765	3474	NR	895	4371	NR
380	3076	NR	510	81972	NR	640	53914	NR	770	3469	NR	900	4082	NR
385	2904	NR	515	92590	NR	645	48385	NR	775	3181	NR	905	2982	NR
390	2689	NR	520	100305	NR	650	43219	NR	780	2969	NR	910	4351	NR
395	2619	NR	525	107452	NR	655	38562	NR	785	3132	NR	915	3365	NR
400	2679	NR	530	111373	NR	660	34110	NR	790	2507	NR	920	3430	NR
405	3515	NR	535	114505	NR	665	30085	NR	795	2968	NR	925	4264	NR
410	6934	NR	540	116408	NR	670	26205	NR	800	2758	NR	930	4095	NR
415	14943	NR	545	118700	NR	675	22906	NR	805	2872	NR	935	5048	NR
420	31939	NR	550	119209	NR	680	20058	NR	810	3094	NR	940	4074	NR
425	64701	NR	555	120742	NR	685	17413	NR	815	3222	NR	945	4949	NR
430	110939	NR	560	121594	NR	690	15447	NR	820	3238	NR	950	4387	NR
435	164597	NR	565	121913	NR	695	13398	NR	825	3524	NR	955	4978	NR
440	207696	NR	570	122147	NR	700	11777	NR	830	2921	NR	960	4706	NR
445	201830	NR	575	121605	NR	705	10412	NR	835	3595	NR	965	5083	NR
450	145410	NR	580	120248	NR	710	9544	NR	840	3016	NR	970	4522	NR
455	89594	NR	585	117717	NR	715	8940	NR	845	4032	NR	975	4740	NR
460	58321	NR	590	114359	NR	720	7897	NR	850	3579	NR	980	6122	NR
465	39318	NR	595	109974	NR	725	7045	NR	855	4571	NR	985	6450	NR
470	27693	NR	600	105269	NR	730	6483	NR	860	4485	NR	990	4875	NR
475	23081	NR	605	99453	NR	735	5838	NR	865	3978	NR	995	4764	NR
480	23002	NR	610	92921	NR	740	5261	NR	870	4298	NR	1000	3640	NR
485	26201	NR	615	86989	NR	745	4760	NR	875	4356	NR			

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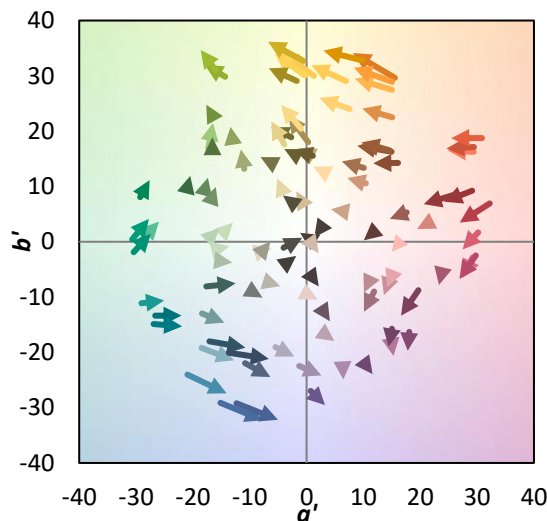
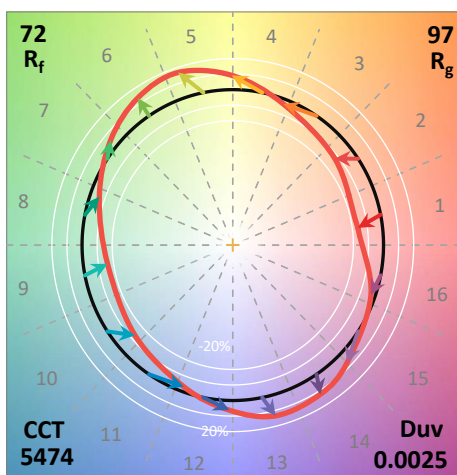
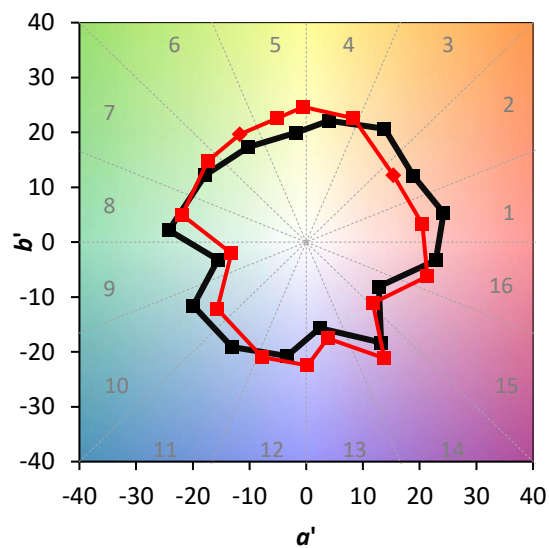
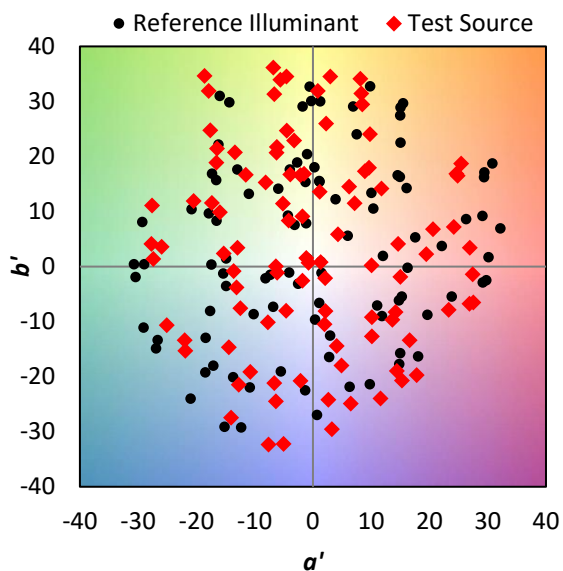
TM-30-18

**Summary**

$R_f = 72.1$   
 $R_g = 97.2$   
 $CIE R_a = 71.7$   
 $R_g = -27.1$



**Color Vector Graphics**

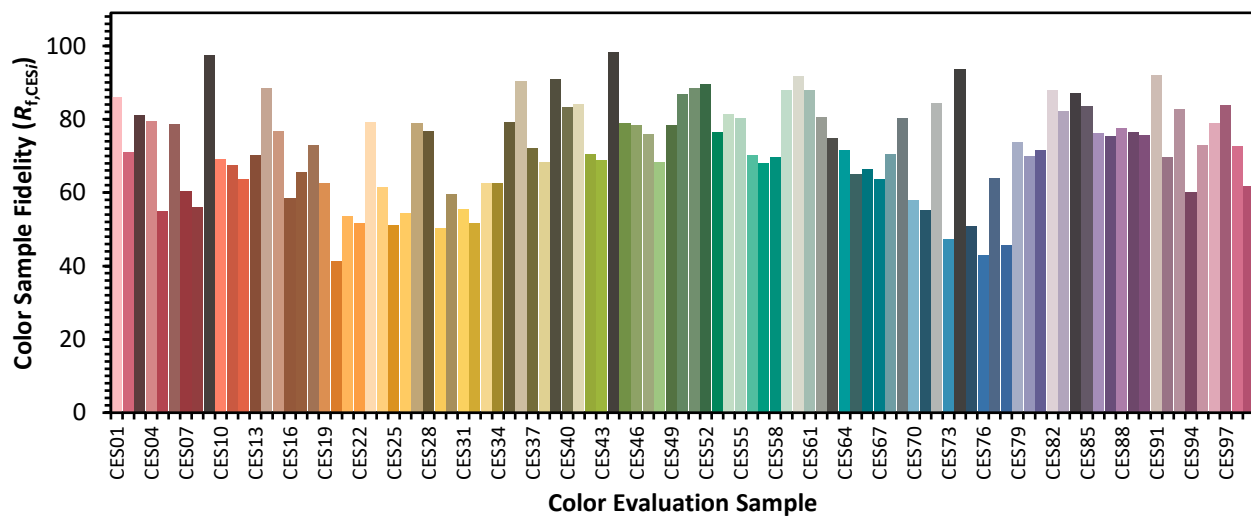


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

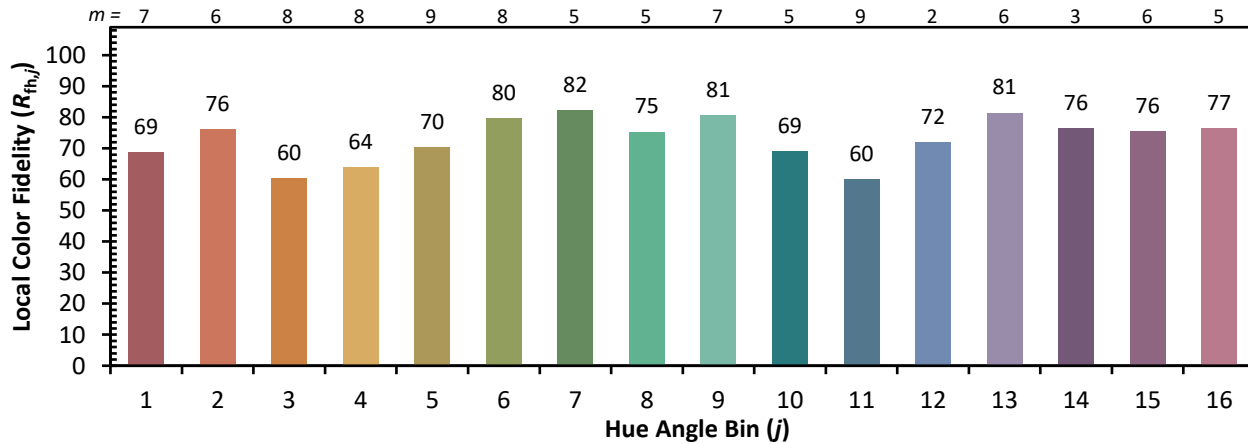
CES01 = 85	CES26 = 54	CES51 = 88	CES76 = 43
CES02 = 59	CES27 = 79	CES52 = 90	CES77 = 64
CES03 = 30	CES28 = 77	CES53 = 77	CES78 = 46
CES04 = 69	CES29 = 50	CES54 = 81	CES79 = 74
CES05 = 46	CES30 = 59	CES55 = 80	CES80 = 70
CES06 = 50	CES31 = 55	CES56 = 70	CES81 = 71
CES07 = 38	CES32 = 52	CES57 = 68	CES82 = 88
CES08 = 38	CES33 = 63	CES58 = 70	CES83 = 82
CES09 = 29	CES34 = 63	CES59 = 88	CES84 = 87
CES10 = 72	CES35 = 79	CES60 = 92	CES85 = 84
CES11 = 55	CES36 = 90	CES61 = 88	CES86 = 76
CES12 = 61	CES37 = 72	CES62 = 81	CES87 = 75
CES13 = 41	CES38 = 68	CES63 = 75	CES88 = 77
CES14 = 74	CES39 = 91	CES64 = 72	CES89 = 76
CES15 = 70	CES40 = 83	CES65 = 65	CES90 = 76
CES16 = 46	CES41 = 84	CES66 = 66	CES91 = 92
CES17 = 48	CES42 = 70	CES67 = 64	CES92 = 70
CES18 = 55	CES43 = 69	CES68 = 71	CES93 = 83
CES19 = 70	CES44 = 98	CES69 = 80	CES94 = 60
CES20 = 64	CES45 = 79	CES70 = 58	CES95 = 73
CES21 = 85	CES46 = 78	CES71 = 55	CES96 = 79
CES22 = 77	CES47 = 76	CES72 = 84	CES97 = 84
CES23 = 91	CES48 = 68	CES73 = 47	CES98 = 73
CES24 = 90	CES49 = 78	CES74 = 94	CES99 = 62
CES25 = 71	CES50 = 87	CES75 = 51	



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Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-1908-441-9-R4

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Measure Comparisons



(END OF REPORT)