

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: P633282

Luminaire Tested: GWS-SA2E-735-U-T4W-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P633282  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-52)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA2E-735-U-T4W-W  
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS  
Light Source: (32) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

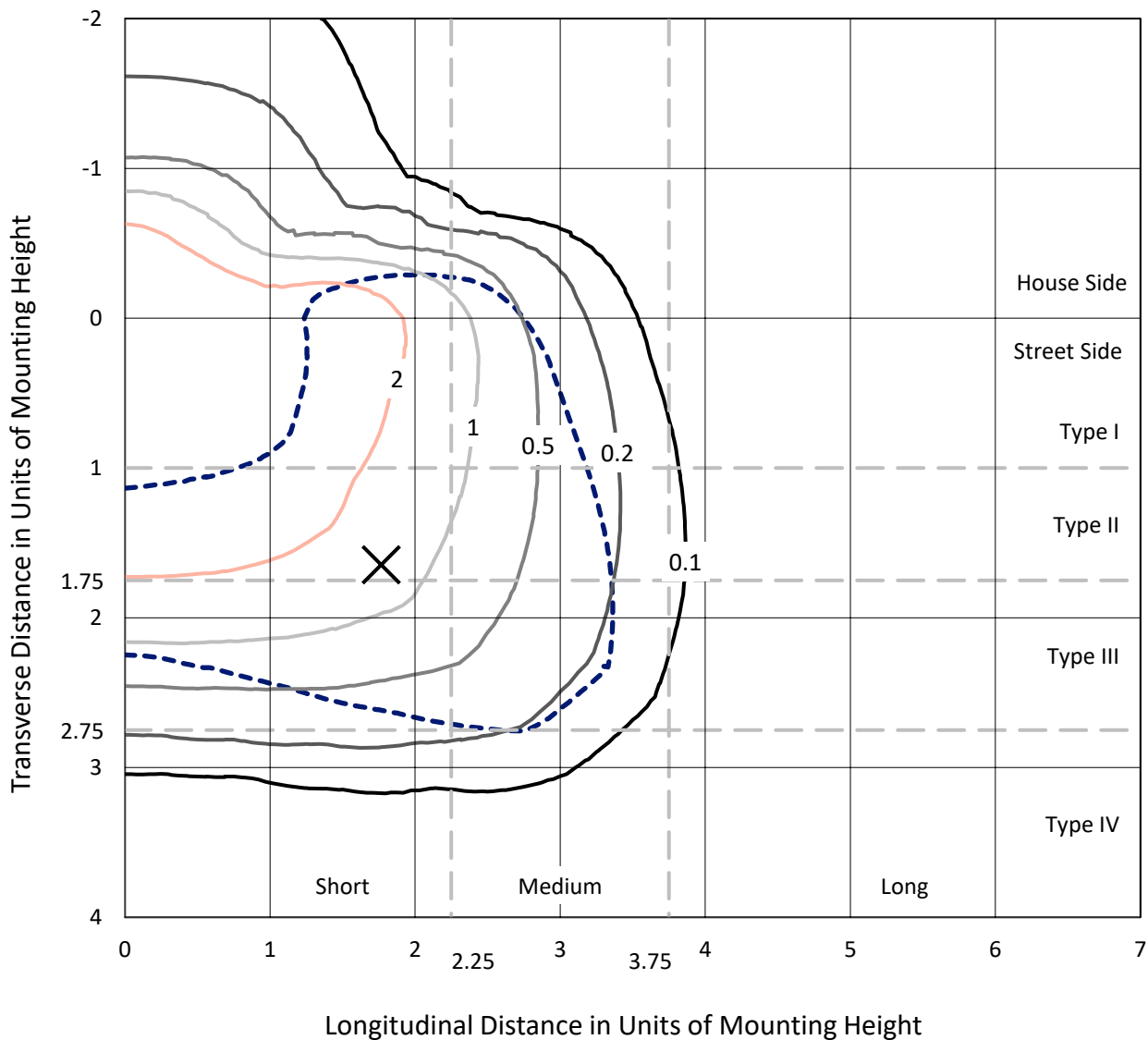
Lumens per Lamp: N/A  
Luminaire Lumens: 14267.8 lumens  
Efficiency: N/A  
Efficacy: 131.9 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B2 - U0 - G3  
  
Input Watts (W): 108.2  
Input Voltage (V): 120  
Input Current (Ain): 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



REPORT NUMBER: P633282  
 CATALOG NUMBER: GWS-SA2E-735-U-T4W-W

### Iso-Footcandle Lines of Horizontal Illumination

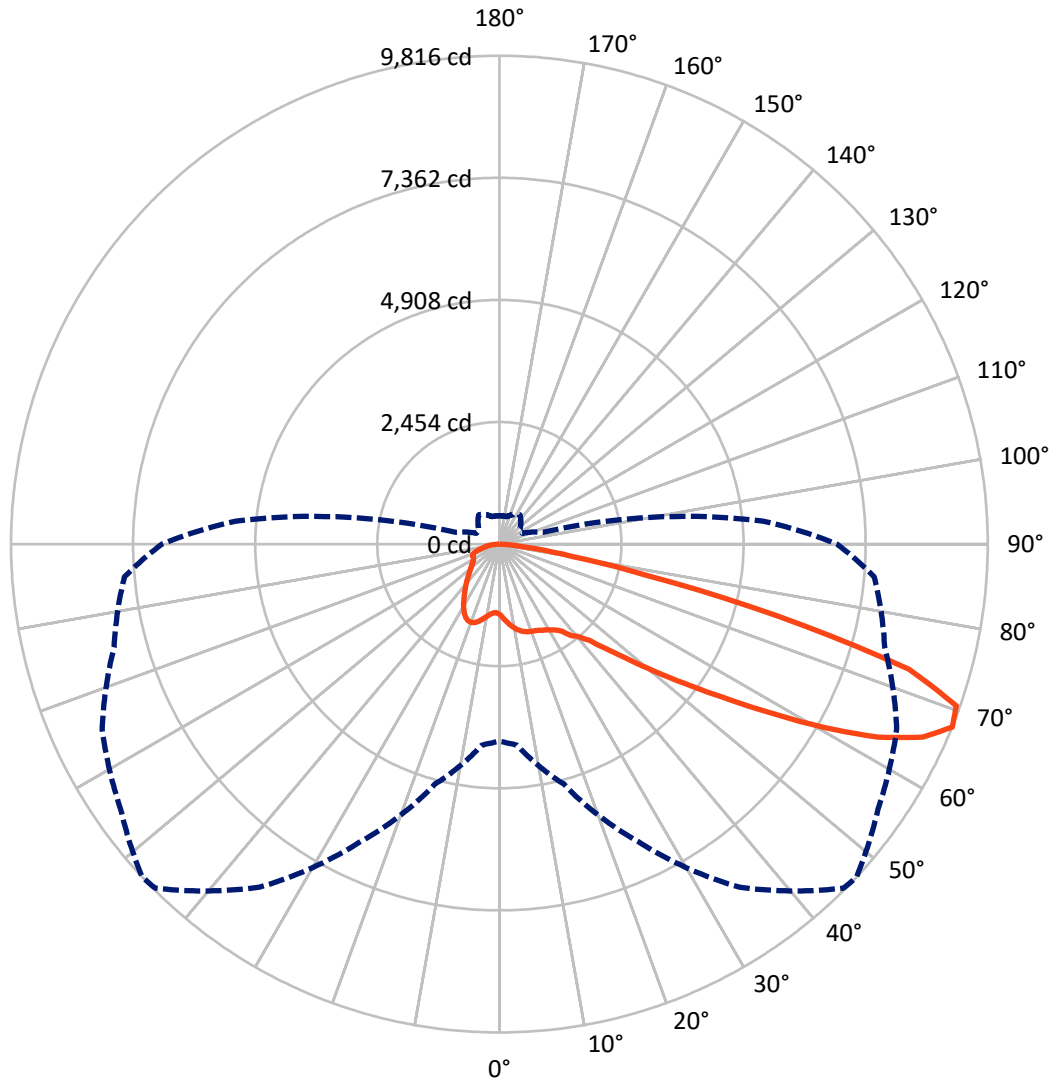
✕ Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.5 fc  
 Type III - Short - N/A

REPORT NUMBER: P633282  
CATALOG NUMBER: GWS-SA2E-735-U-T4W-W

### Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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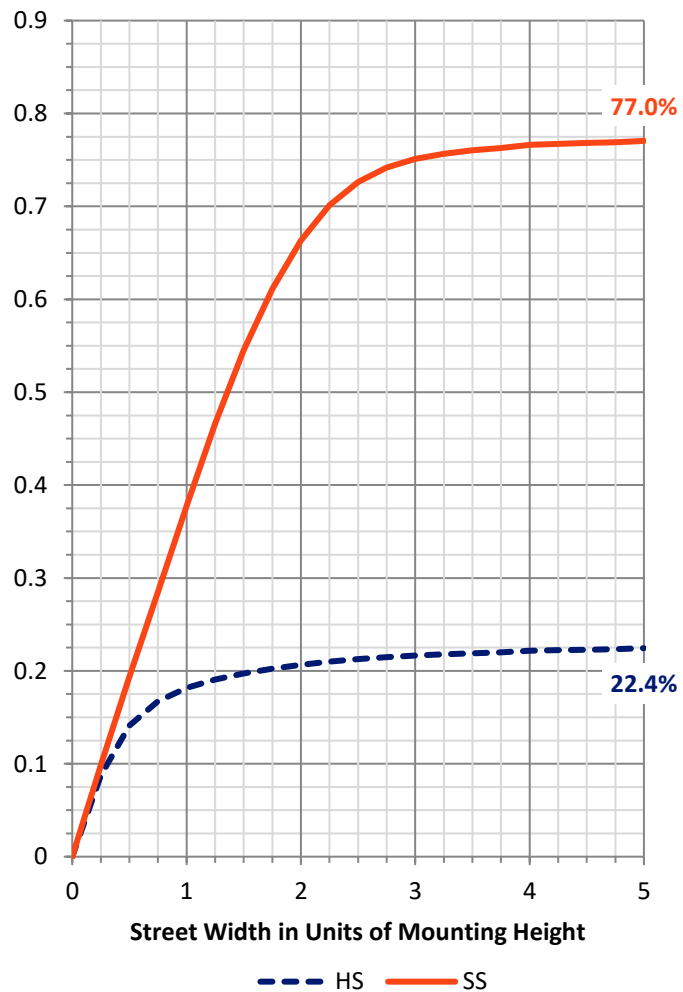
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	3251.7	0.0	3251.7
	% Fixture	22.8	0.0	22.8
<b>Street Side</b>	Lumens	11016.1	0.0	11016.1
	% Fixture	77.2	0.0	77.2
<b>Total</b>	Lumens	14267.8	0.0	14267.8
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	144.6	1.0
10°-20°	481.6	3.4
20°-30°	818.6	5.7
30°-40°	1199.1	8.4
40°-50°	1827.0	12.8
50°-60°	3268.9	22.9
60°-70°	4362.1	30.6
70°-80°	1972.6	13.8
80°-90°	193.3	1.4
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°	14267.8	100.0
0°-180°	14267.8	100.0

**Coefficient of Utilization**



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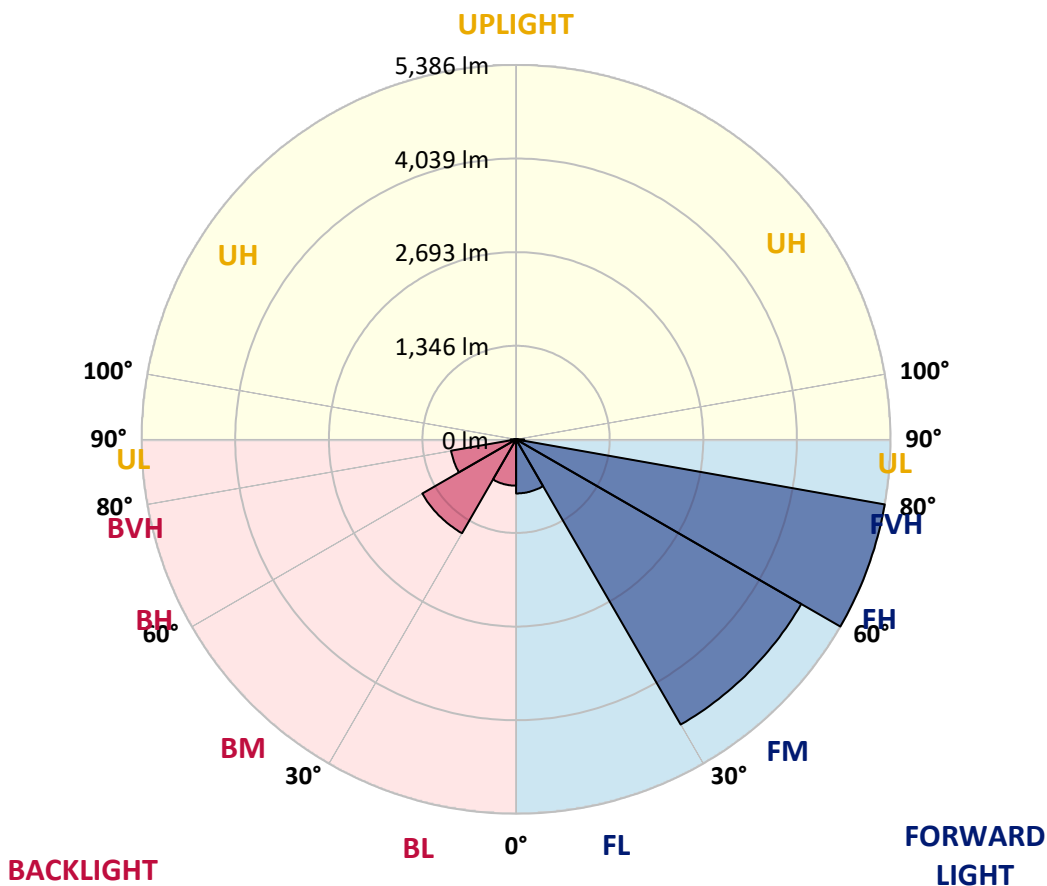
CATALOG NUMBER: GWS-SA2E-735-U-T4W-W

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	778.1	5.5			
FM (30°-60°)	4737.1	33.2			
FH (60°-80°)	5385.9	37.7			G3/7500
FVH (80°-90°)	115.0	0.8			G2/225
BL (0°-30°)	666.6	4.7	B2/1000		
BM (30°-60°)	1558.1	10.9	B2/2500		
BH (60°-80°)	948.8	6.6	B2/1000		G2/1000
BVH (80°-90°)	78.3	0.5			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G3**

Type III Short





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 CATALOG NUMBER: GWS-SA2E-735-U-T4W-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	47°	55°	65°	75°	85°
0°	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4
2.5°	1508.3	1513.4	1512.4	1504.1	1499.0	1489.7	1490.7	1476.3	1454.6	1440.2	1423.7
5°	1641.4	1649.6	1639.3	1625.9	1605.2	1575.3	1572.2	1539.2	1498.0	1469.1	1439.2
7.5°	1756.9	1762.1	1749.7	1727.0	1697.1	1656.8	1649.6	1610.4	1558.8	1513.4	1470.1
10°	1846.7	1852.8	1836.3	1806.4	1767.2	1727.0	1721.8	1681.6	1626.9	1573.3	1518.6
12.5°	1923.0	1925.1	1907.5	1867.3	1825.0	1783.7	1778.6	1741.4	1690.9	1636.2	1576.4
15°	1967.4	1968.4	1946.7	1902.4	1862.1	1826.0	1822.9	1790.9	1744.5	1692.9	1629.0
17.5°	1964.3	1966.3	1950.8	1911.6	1876.6	1854.9	1851.8	1831.2	1795.1	1748.6	1684.7
20°	1926.1	1928.2	1917.8	1892.0	1873.5	1867.3	1868.3	1862.1	1840.5	1802.3	1737.3
22.5°	1896.2	1899.3	1890.0	1871.4	1869.3	1883.8	1886.9	1890.0	1879.7	1845.6	1782.7
25°	1910.6	1915.8	1901.3	1875.5	1879.7	1911.6	1917.8	1928.2	1919.9	1891.0	1836.3
27.5°	2010.7	2013.8	1976.6	1924.0	1911.6	1945.7	1955.0	1971.5	1965.3	1938.5	1896.2
30°	2242.8	2240.7	2161.3	2032.3	1980.8	1994.2	2001.4	2025.1	2027.2	2009.7	1969.4
32.5°	2569.8	2559.5	2436.8	2231.5	2081.9	2048.9	2057.1	2089.1	2112.8	2094.2	2039.6
35°	2915.4	2906.2	2771.0	2530.6	2268.6	2154.1	2144.8	2169.6	2205.7	2154.1	2075.7
37.5°	3244.5	3230.1	3091.9	2794.7	2498.7	2338.7	2325.3	2300.6	2278.9	2179.9	2120.0
40°	3609.7	3593.2	3472.5	3136.2	2752.4	2480.1	2446.0	2348.0	2328.4	2265.5	2235.6
42.5°	3999.7	3999.7	3899.6	3568.5	3058.8	2682.3	2637.9	2490.4	2511.0	2469.8	2434.7
45°	4389.7	4401.0	4321.6	4003.8	3468.4	3064.0	2992.8	2783.4	2832.9	2814.3	2796.8
47.5°	4721.9	4743.5	4728.0	4448.5	3969.8	3528.2	3419.9	3202.2	3308.5	3352.9	3402.4
50°	5079.8	5103.6	5088.1	4977.7	4556.8	4090.5	3993.5	3768.6	3951.2	4084.3	4246.3
52.5°	5611.1	5645.2	5516.2	5473.9	5269.7	4729.1	4642.4	4386.6	4717.7	4938.5	5299.6
55°	6059.9	6058.9	6013.5	6110.5	6035.1	5510.0	5414.1	5182.0	5604.9	5839.1	6367.3
57.5°	6268.3	6293.1	6448.8	6723.3	6873.9	6464.3	6372.5	6135.2	6557.2	6678.9	7249.4
60°	6375.6	6406.5	6707.8	7250.4	7655.9	7506.3	7470.2	7167.9	7405.2	7390.7	7993.2
62.5°	6225.0	6286.9	6770.7	7491.8	8214.0	8553.4	8542.1	8085.0	8126.3	7985.0	8454.4
65°	5533.8	5600.8	6360.1	7371.1	8532.8	9349.8	9352.9	8915.5	8680.3	8273.8	8377.0
67.5°	3957.4	4053.3	4992.1	6595.3	8420.3	9780.0	9816.1	9292.1	8810.3	8018.0	7564.0
70°	2157.2	2227.3	2962.9	4794.1	7407.2	9676.9	9743.9	9110.5	8236.7	6935.8	5822.6
72.5°	980.1	1002.8	1378.3	2630.7	5060.2	8329.5	8610.1	8130.4	6764.5	5123.2	3702.6
75°	448.8	459.1	600.4	1258.6	2644.1	5574.0	5771.0	6055.8	4707.4	3235.3	1930.2
77.5°	281.6	284.7	341.5	575.7	1318.4	2782.4	2989.7	3605.6	2756.6	1601.1	806.7
80°	166.1	169.2	212.5	311.6	619.0	1273.1	1470.1	1425.7	1295.8	691.2	367.3
82.5°	83.6	86.7	122.8	177.4	337.3	506.5	596.3	599.4	482.8	374.5	207.4
85°	29.9	30.9	40.2	70.2	143.4	167.1	186.7	228.0	236.2	217.7	100.1
87.5°	0.0	0.0	1.0	2.1	4.1	16.5	17.5	33.0	69.1	77.4	40.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P633282  
 CATALOG NUMBER: GWS-SA2E-735-U-T4W-W

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4	1414.4
2.5°	1418.5	1403.0	1397.9	1392.7	1384.5	1381.4	1375.2	1369.0	1369.0	1362.8	1359.7
5°	1425.7	1405.1	1391.7	1385.5	1380.3	1383.4	1383.4	1385.5	1392.7	1388.6	1390.7
7.5°	1451.5	1427.8	1409.2	1404.1	1404.1	1416.5	1424.7	1435.0	1448.4	1450.5	1450.5
10°	1496.9	1469.1	1449.5	1446.4	1451.5	1469.1	1481.4	1493.8	1510.3	1511.4	1513.4
12.5°	1546.4	1518.6	1499.0	1503.1	1508.3	1531.0	1544.4	1554.7	1571.2	1571.2	1570.2
15°	1598.0	1567.1	1550.6	1558.8	1574.3	1600.1	1602.2	1603.2	1611.4	1609.4	1608.3
17.5°	1651.7	1618.7	1606.3	1618.7	1635.2	1647.5	1637.2	1622.8	1619.7	1615.6	1613.5
20°	1704.3	1670.2	1665.1	1674.4	1679.5	1669.2	1637.2	1610.4	1598.0	1591.8	1589.8
22.5°	1749.7	1720.8	1717.7	1717.7	1691.9	1655.8	1608.3	1572.2	1555.7	1547.5	1545.4
25°	1803.3	1776.5	1771.3	1743.5	1677.5	1611.4	1547.5	1514.5	1501.0	1496.9	1498.0
27.5°	1866.3	1847.7	1831.2	1751.7	1636.2	1533.0	1460.8	1446.4	1441.2	1446.4	1449.5
30°	1943.6	1925.1	1887.9	1741.4	1570.2	1430.9	1361.8	1360.7	1376.2	1389.6	1391.7
32.5°	2006.6	1998.3	1937.4	1708.4	1477.3	1318.4	1259.6	1263.8	1291.6	1310.2	1313.3
35°	2056.1	2069.5	1978.7	1653.7	1366.9	1212.2	1165.8	1167.8	1183.3	1209.1	1210.1
37.5°	2126.2	2171.6	2015.8	1570.2	1240.0	1120.4	1078.1	1062.6	1060.5	1067.8	1069.8
40°	2267.6	2335.7	2042.7	1448.4	1117.3	1037.8	990.4	960.5	934.7	915.1	908.9
42.5°	2481.1	2559.5	2058.1	1300.9	1007.9	956.3	902.7	864.5	819.1	777.9	763.4
45°	2873.1	2898.9	2058.1	1144.1	910.9	880.0	826.4	781.0	723.2	674.7	664.4
47.5°	3500.4	3417.9	2060.2	992.4	825.3	812.9	766.5	714.9	651.0	610.7	604.5
50°	4445.4	4155.5	2102.5	866.6	754.1	756.2	722.2	665.4	607.6	577.7	572.6
52.5°	5516.2	5064.4	2216.0	773.7	694.3	709.8	691.2	636.5	584.9	559.2	554.0
55°	6523.1	5900.0	2313.0	707.7	643.7	670.6	669.5	619.0	572.6	546.8	543.7
57.5°	7379.4	6472.6	2298.5	654.1	600.4	634.5	649.9	607.6	564.3	542.6	539.6
60°	7911.7	6775.9	2093.2	604.5	567.4	608.7	638.6	604.5	568.4	563.3	564.3
62.5°	8142.8	6720.2	1699.1	567.4	545.7	596.3	651.0	626.2	606.6	619.0	626.2
65°	7783.8	6241.5	1250.4	539.6	525.1	599.4	679.9	660.3	606.6	614.9	618.0
67.5°	6787.2	5313.0	903.7	511.7	499.3	608.7	721.1	655.1	571.5	571.5	565.3
70°	4891.0	3821.2	656.1	483.8	473.5	595.3	723.2	620.0	531.3	528.2	512.7
72.5°	2943.3	2254.2	511.7	452.9	434.3	528.2	677.8	578.8	492.1	466.3	447.7
75°	1528.9	1129.7	429.2	418.8	372.4	447.7	620.0	514.8	420.9	398.2	387.9
77.5°	655.1	528.2	368.3	373.5	309.5	376.6	500.3	445.7	373.5	344.6	335.3
80°	322.9	300.2	290.9	299.2	247.6	290.9	431.2	390.0	316.7	283.7	270.3
82.5°	184.7	175.4	209.4	212.5	176.4	243.5	364.2	330.1	262.0	225.9	204.3
85°	85.6	91.8	126.9	127.9	109.4	167.1	238.3	185.7	139.3	115.5	110.4
87.5°	34.0	40.2	55.7	54.7	32.0	30.9	20.6	11.3	9.3	8.3	7.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

**Spectral Parameters**

CCT (K): 3388  
 CIE u': 0.2371  
 CIE v': 0.5177  
 Duv: 0.0032  
 CIE x: 0.4153  
 CIE y: 0.4030  
 CIE z: 0.1817  
 Peak Wavelength (nm): 590  
 Dominant Wavelength (nm): 580  
 Purity: 45.7  
  
 Rf: 76.9  
 Rg: 94.4

CRI (Ra):	73.1		
R1:	68.9	R9:	-34.6
R2:	81.1	R10:	57.8
R3:	93.1	R11:	68.6
R4:	71.6	R12:	53.9
R5:	69.4	R13:	70.9
R6:	75.0	R14:	96.2
R7:	79.5		
R8:	46.4		

**Test Conditions**

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1



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Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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CIE 1931 Chromaticity Diagram



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



CCT = 3388K  
 CIE x = 0.4153  
 CIE y = 0.4030  
 Duv = 0.0032

Point lies inside the ANSI 3500K 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	2672	0.0	490	34553	4.9	620	136720	35.6	750	5870	0.0	880	4216	0.0
365	2252	0.0	495	44336	8.0	625	126308	27.9	755	5421	0.0	885	4132	0.0
370	2217	0.0	500	54643	12.1	630	114625	20.7	760	5097	0.0	890	3992	0.0
375	2697	0.0	505	64676	18.1	635	103216	15.5	765	4626	0.0	895	3214	0.0
380	3039	0.0	510	73825	25.4	640	92605	11.1	770	3782	0.0	900	2580	0.0
385	2655	0.0	515	81872	33.9	645	83234	8.0	775	3506	0.0	905	1776	0.0
390	2357	0.0	520	88574	43.0	650	73263	5.4	780	3507	0.0	910	3995	0.0
395	2186	0.0	525	93289	50.1	655	64627	3.7	785	3267	0.0	915	4288	0.0
400	2015	0.0	530	98393	57.9	660	56614	2.4	790	2849	0.0	920	2446	0.0
405	2234	0.0	535	103269	64.0	665	49537	1.6	795	3037	0.0	925	3009	0.0
410	3412	0.0	540	107316	69.9	670	42866	0.9	800	2716	0.0	930	3026	0.0
415	6135	0.0	545	113101	75.3	675	36708	0.6	805	2648	0.0	935	4734	0.0
420	12146	0.0	550	120690	82.0	680	31814	0.4	810	3187	0.0	940	3719	0.0
425	23983	0.1	555	128583	87.8	685	27485	0.2	815	2931	0.0	945	1480	0.0
430	42142	0.3	560	137796	93.6	690	23698	0.1	820	2717	0.0	950	3450	0.0
435	68228	0.8	565	146577	97.5	695	20309	0.1	825	2236	0.0	955	5051	0.0
440	99323	1.6	570	154581	100.5	700	17890	0.1	830	2628	0.0	960	3176	0.0
445	115584	2.4	575	162633	101.2	705	15500	0.0	835	3140	0.0	965	5178	0.0
450	94997	2.5	580	168101	99.9	710	13699	0.0	840	3675	0.0	970	6385	0.0
455	61433	2.1	585	173145	96.2	715	12398	0.0	845	3283	0.0	975	3810	0.0
460	43373	1.8	590	174675	90.3	720	11147	0.0	850	3055	0.0	980	4322	0.0
465	32472	1.7	595	173724	82.3	725	9761	0.0	855	2932	0.0	985	4200	0.0
470	24257	1.5	600	171241	73.8	730	8651	0.0	860	3382	0.0	990	4661	0.0
475	21690	1.7	605	165134	64.0	735	7730	0.0	865	2605	0.0	995	6746	0.0
480	23173	2.2	610	156652	53.8	740	6847	0.0	870	3325	0.0	1000	4150	0.0
485	27564	3.3	615	147879	44.6	745	6124	0.0	875	3325	0.0			

REPORT NUMBER: SP1-2101-121-7

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

$\lambda$ (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	2672	0.0	490	34553	53.2	620	136720	1.7	750	5870	0.0	880	4216	0.0
365	2252	0.0	495	44336	71.7	625	126308	1.1	755	5421	0.0	885	4132	0.0
370	2217	0.0	500	54643	91.4	630	114625	0.6	760	5097	0.0	890	3992	0.0
375	2697	0.0	505	64676	110.0	635	103216	0.4	765	4626	0.0	895	3214	0.0
380	3039	0.0	510	73825	125.1	640	92605	0.2	770	3782	0.0	900	2580	0.0
385	2655	0.0	515	81872	135.7	645	83234	0.1	775	3506	0.0	905	1776	0.0
390	2357	0.0	520	88574	140.8	650	73263	0.1	780	3507	0.0	910	3995	0.0
395	2186	0.0	525	93289	139.6	655	64627	0.1	785	3267	0.0	915	4288	0.0
400	2015	0.0	530	98393	135.7	660	56614	0.0	790	2849	0.0	920	2446	0.0
405	2234	0.1	535	103269	128.7	665	49537	0.0	795	3037	0.0	925	3009	0.0
410	3412	0.2	540	107316	118.6	670	42866	0.0	800	2716	0.0	930	3026	0.0
415	6135	0.6	545	113101	108.4	675	36708	0.0	805	2648	0.0	935	4734	0.0
420	12146	2.0	550	120690	98.7	680	31814	0.0	810	3187	0.0	940	3719	0.0
425	23983	5.9	555	128583	87.9	685	27485	0.0	815	2931	0.0	945	1480	0.0
430	42142	14.3	560	137796	77.0	690	23698	0.0	820	2717	0.0	950	3450	0.0
435	68228	30.5	565	146577	65.8	695	20309	0.0	825	2236	0.0	955	5051	0.0
440	99323	55.5	570	154581	54.6	700	17890	0.0	830	2628	0.0	960	3176	0.0
445	115584	77.4	575	162633	44.3	705	15500	0.0	835	3140	0.0	965	5178	0.0
450	94997	73.6	580	168101	34.6	710	13699	0.0	840	3675	0.0	970	6385	0.0
455	61433	53.7	585	173145	26.5	715	12398	0.0	845	3283	0.0	975	3810	0.0
460	43373	41.9	590	174675	19.5	720	11147	0.0	850	3055	0.0	980	4322	0.0
465	32472	34.3	595	173724	13.9	725	9761	0.0	855	2932	0.0	985	4200	0.0
470	24257	27.9	600	171241	9.7	730	8651	0.0	860	3382	0.0	990	4661	0.0
475	21690	27.1	605	165134	6.5	735	7730	0.0	865	2605	0.0	995	6746	0.0
480	23173	31.3	610	156652	4.2	740	6847	0.0	870	3325	0.0	1000	4150	0.0
485	27564	40.0	615	147879	2.7	745	6124	0.0	875	3325	0.0			

REPORT NUMBER: SP1-2101-121-7

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 4490.7 M/P: 0.5**

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	2672	0.0	490	34553	28.8	620	136720	0.1	750	5870	0.0	880	4216	0.0
365	2252	0.0	495	44336	36.6	625	126308	0.1	755	5421	0.0	885	4132	0.0
370	2217	0.0	500	54643	43.9	630	114625	0.0	760	5097	0.0	890	3992	0.0
375	2697	0.0	505	64676	49.6	635	103216	0.0	765	4626	0.0	895	3214	0.0
380	3039	0.0	510	73825	53.0	640	92605	0.0	770	3782	0.0	900	2580	0.0
385	2655	0.0	515	81872	53.5	645	83234	0.0	775	3506	0.0	905	1776	0.0
390	2357	0.0	520	88574	51.6	650	73263	0.0	780	3507	0.0	910	3995	0.0
395	2186	0.0	525	93289	47.3	655	64627	0.0	785	3267	0.0	915	4288	0.0
400	2015	0.0	530	98393	42.5	660	56614	0.0	790	2849	0.0	920	2446	0.0
405	2234	0.0	535	103269	37.2	665	49537	0.0	795	3037	0.0	925	3009	0.0
410	3412	0.1	540	107316	31.4	670	42866	0.0	800	2716	0.0	930	3026	0.0
415	6135	0.4	545	113101	26.3	675	36708	0.0	805	2648	0.0	935	4734	0.0
420	12146	1.4	550	120690	21.7	680	31814	0.0	810	3187	0.0	940	3719	0.0
425	23983	3.7	555	128583	17.3	685	27485	0.0	815	2931	0.0	945	1480	0.0
430	42142	8.9	560	137796	13.6	690	23698	0.0	820	2717	0.0	950	3450	0.0
435	68228	18.2	565	146577	10.3	695	20309	0.0	825	2236	0.0	955	5051	0.0
440	99323	33.2	570	154581	7.6	700	17890	0.0	830	2628	0.0	960	3176	0.0
445	115584	45.6	575	162633	5.4	705	15500	0.0	835	3140	0.0	965	5178	0.0
450	94997	43.8	580	168101	3.8	710	13699	0.0	840	3675	0.0	970	6385	0.0
455	61433	32.2	585	173145	2.6	715	12398	0.0	845	3283	0.0	975	3810	0.0
460	43373	25.6	590	174675	1.7	720	11147	0.0	850	3055	0.0	980	4322	0.0
465	32472	21.2	595	173724	1.1	725	9761	0.0	855	2932	0.0	985	4200	0.0
470	24257	17.4	600	171241	0.7	730	8651	0.0	860	3382	0.0	990	4661	0.0
475	21690	16.6	605	165134	0.5	735	7730	0.0	865	2605	0.0	995	6746	0.0
480	23173	18.6	610	156652	0.3	740	6847	0.0	870	3325	0.0	1000	4150	0.0
485	27564	22.7	615	147879	0.2	745	6124	0.0	875	3325	0.0			

**Summary**

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$



**Color Vector Graphics**





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

CES01 = 86	CES26 = 68	CES51 = 90	CES76 = 63
CES02 = 62	CES27 = 88	CES52 = 89	CES77 = 80
CES03 = 31	CES28 = 87	CES53 = 80	CES78 = 65
CES04 = 70	CES29 = 67	CES54 = 84	CES79 = 87
CES05 = 48	CES30 = 74	CES55 = 84	CES80 = 86
CES06 = 51	CES31 = 71	CES56 = 75	CES81 = 75
CES07 = 40	CES32 = 67	CES57 = 74	CES82 = 94
CES08 = 39	CES33 = 74	CES58 = 76	CES83 = 91
CES09 = 29	CES34 = 78	CES59 = 87	CES84 = 89
CES10 = 75	CES35 = 89	CES60 = 93	CES85 = 80
CES11 = 58	CES36 = 98	CES61 = 86	CES86 = 66
CES12 = 64	CES37 = 86	CES62 = 89	CES87 = 79
CES13 = 43	CES38 = 82	CES63 = 77	CES88 = 79
CES14 = 74	CES39 = 95	CES64 = 74	CES89 = 70
CES15 = 71	CES40 = 91	CES65 = 68	CES90 = 77
CES16 = 47	CES41 = 89	CES66 = 71	CES91 = 88
CES17 = 50	CES42 = 88	CES67 = 69	CES92 = 60
CES18 = 56	CES43 = 82	CES68 = 74	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 82	CES94 = 52
CES20 = 65	CES45 = 87	CES70 = 67	CES95 = 69
CES21 = 86	CES46 = 82	CES71 = 66	CES96 = 78
CES22 = 79	CES47 = 82	CES72 = 88	CES97 = 85
CES23 = 92	CES48 = 72	CES73 = 59	CES98 = 76
CES24 = 91	CES49 = 82	CES74 = 97	CES99 = 63
CES25 = 72	CES50 = 88	CES75 = 66	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)