

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



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: LUMARK

Report Number: P979130

Luminaire Tested: **WPSLED15S-40W-4000K**

Issue Date: 03/31/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P979130  
Test Lab: Cooper Lighting Solutions  
Issue Date: 03/31/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: WPSLED15S-40W-4000K  
Description: LUMARK WALL PACK LED SMALL 80CRI CCT AND LUMEN SELECTIVE FIXTURE  
OPERATING @40W-4000K  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

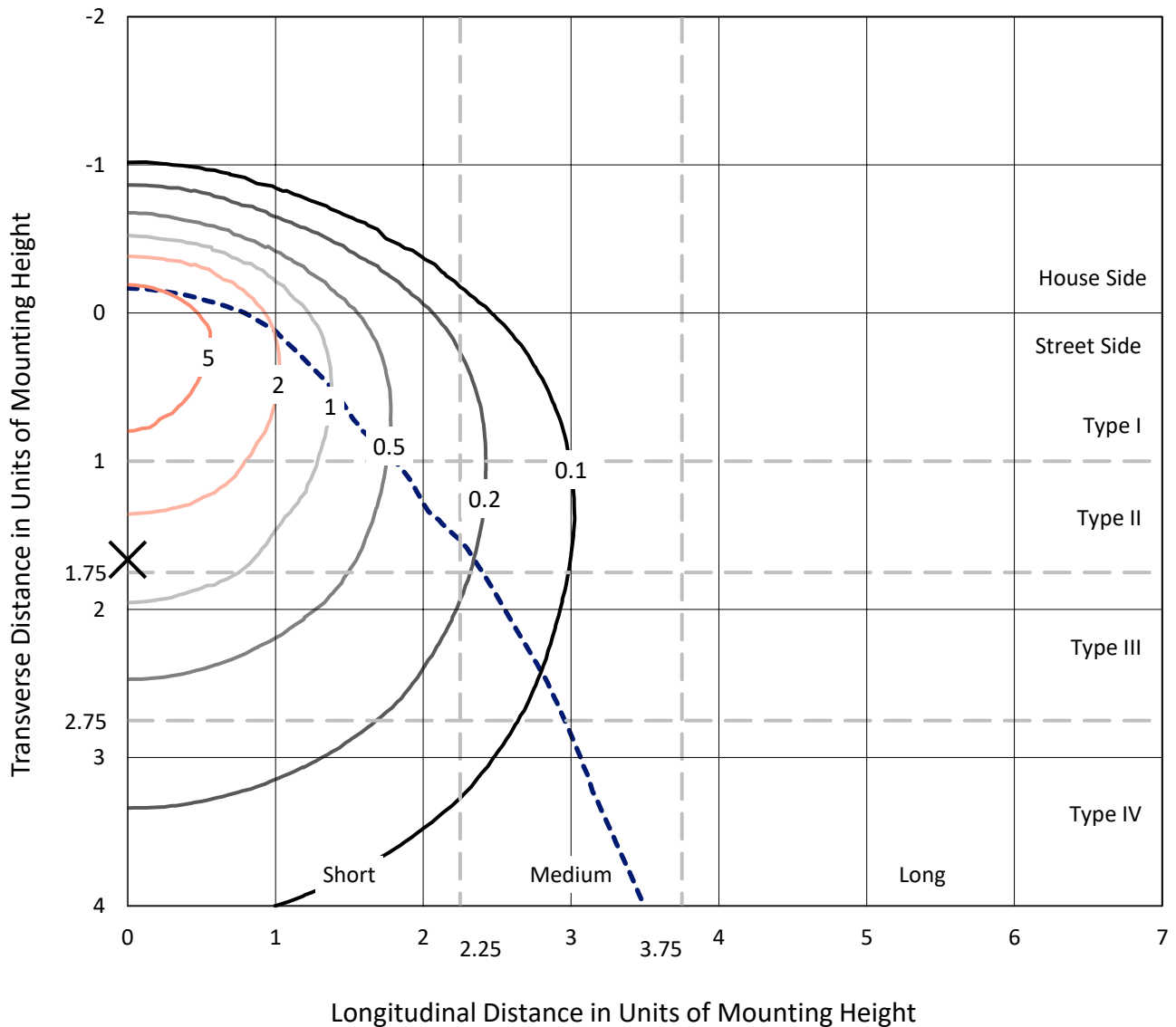
Lumens per Lamp: N/A  
Luminaire Lumens: 6011 lumens  
Efficiency: N/A  
Efficacy: 151.4 lumens/watt  
Luminous Opening: Rectangular w/ Sides (W: 0.61' x L: 0.12' x H: 0.44')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U3 - G3

Input Watts (W): 39.7  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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: 28.75 FT

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### Iso-Footcandle Lines of Horizontal Illumination

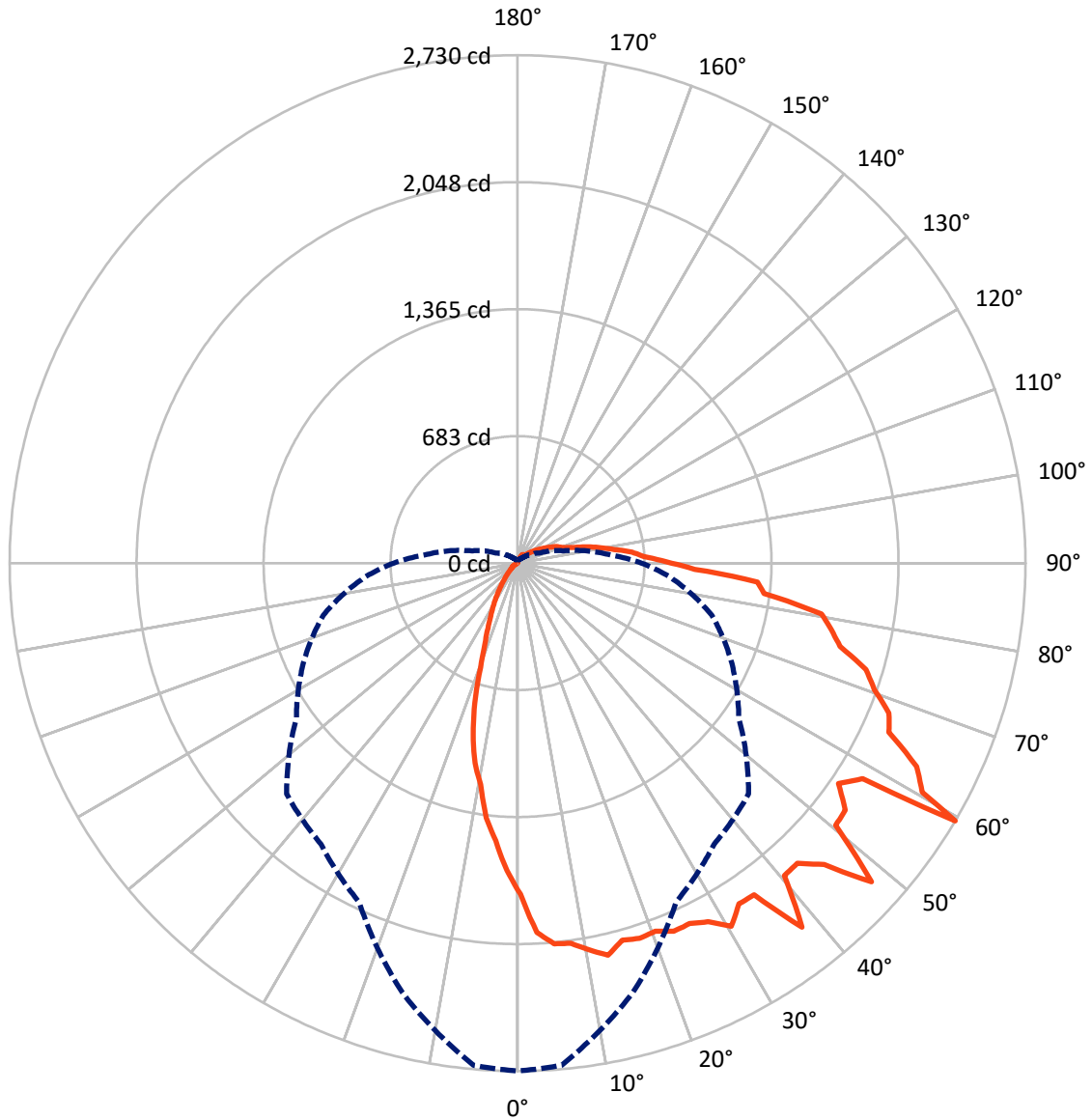
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 9 fc  
 Type IV - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral      - - - Horizontal Cone Through 59-Deg Vertical

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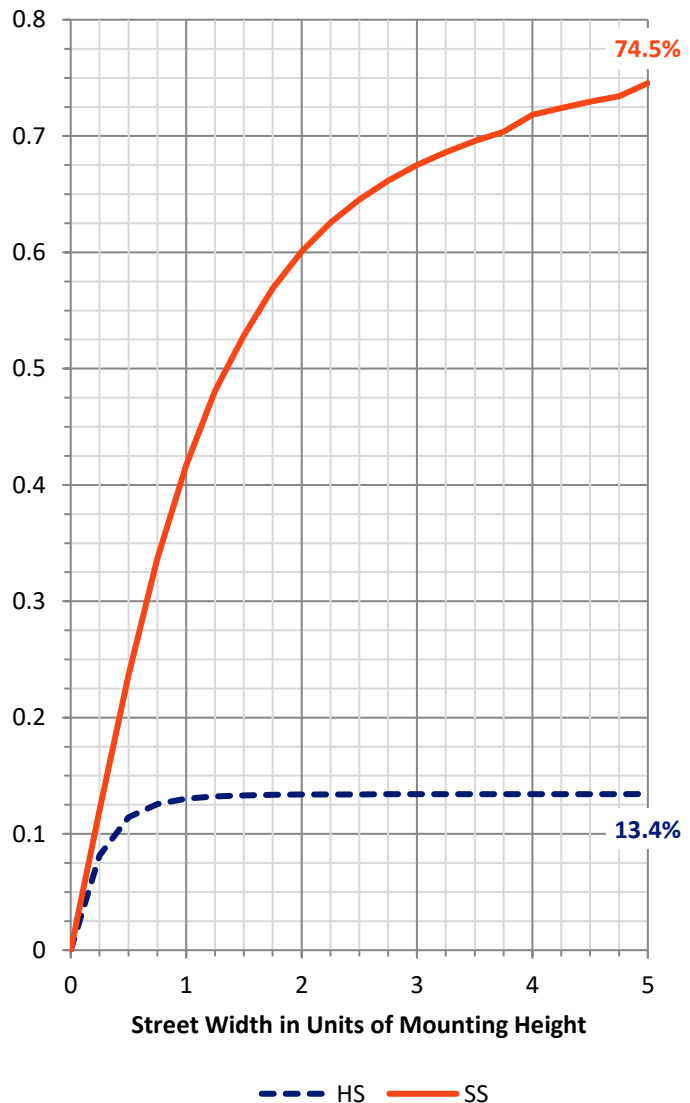
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	816.7	7.4	824.0
	% Fixture	13.6	0.1	13.7
<b>Street Side</b>	Lumens	4764.4	422.6	5187.0
	% Fixture	79.3	7.0	86.3
<b>Total</b>	Lumens	5581.1	430.0	6011.0
	% Fixture	92.8	7.2	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	167.7	2.8
10°-20°	447.8	7.4
20°-30°	632.5	10.5
30°-40°	755.9	12.6
40°-50°	824.3	13.7
50°-60°	831.9	13.8
60°-70°	819.0	13.6
70°-80°	673.3	11.2
80°-90°	428.7	7.1
90°-100°	202.8	3.4
100°-110°	102.2	1.7
110°-120°	57.5	1.0
120°-130°	31.8	0.5
130°-140°	17.8	0.3
140°-150°	11.3	0.2
150°-160°	5.0	0.1
160°-170°	1.3	0.0
170°-180°	0.1	0.0
0°-90°	5581.1	92.8
0°-180°	6011.0	100.0



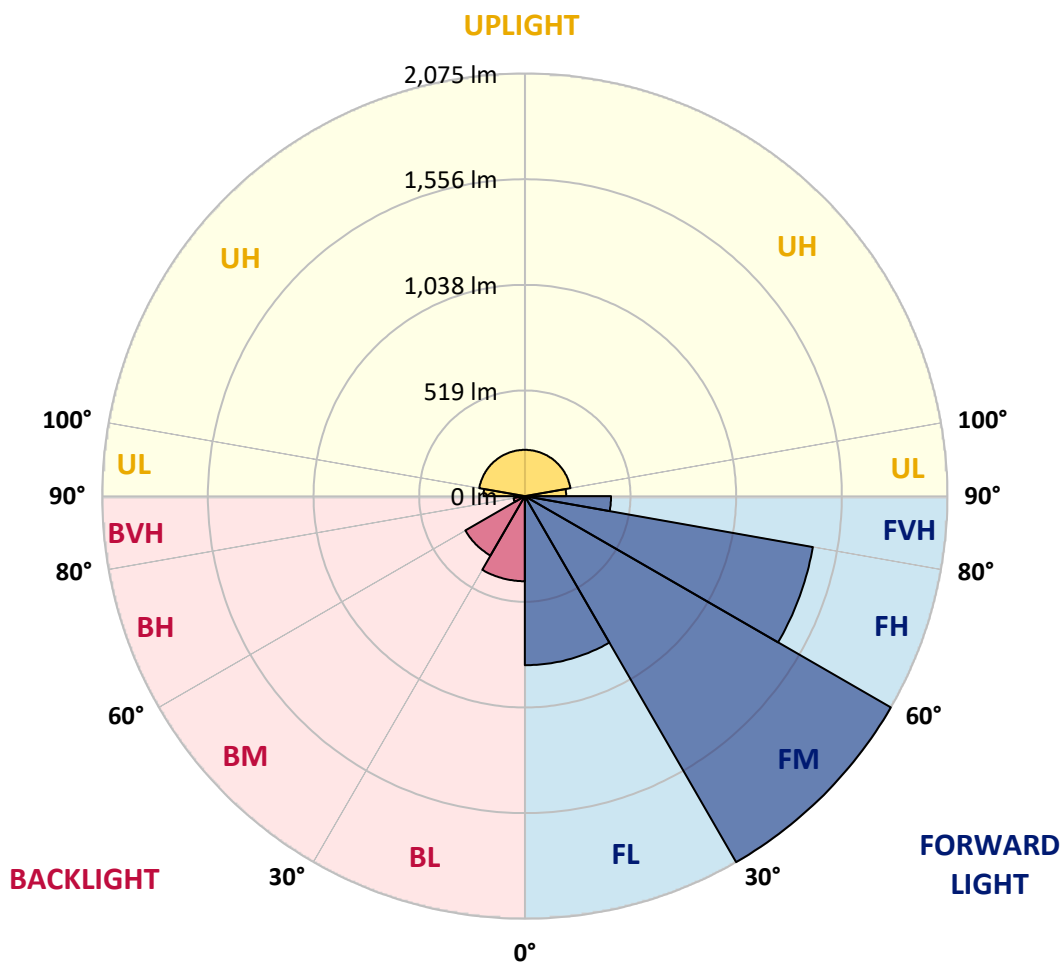
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	830.2	13.8			
FM (30°-60°)	2075.1	34.5			
FH (60°-80°)	1436.1	23.9			G1/1800
FVH (80°-90°)	423.1	7.0			G3/500
BL (0°-30°)	417.8	7.0	B1/500		
BM (30°-60°)	337.1	5.6	B1/1000		
BH (60°-80°)	56.2	0.9	B0/110		G0/110
BVH (80°-90°)	5.6	0.1			G0/10
UL (90°-100°)	202.8	3.4		U3/500	
UH (100°-180°)	227.1	3.8		U3/500	

**BUG Rating: B1-U3-G3**

Type IV Short





REPORT NUMBER: P979130

CATALOG NUMBER: WPSLED15S-40W-4000K

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7
2.5°	1987.5	1994.1	1988.9	1990.4	1979.4	1972.0	1976.4	1944.0	1884.3	1812.9	1779.7
5°	2055.2	2063.3	2053.8	2011.0	1988.9	1972.0	1967.6	1969.8	1946.9	1835.0	1766.5
7.5°	2063.3	2061.9	2061.1	2037.6	2064.1	2078.1	1963.2	1946.9	1932.2	1823.9	1732.6
10°	2114.2	2118.6	2103.8	2060.4	2035.3	1992.6	2041.2	1919.0	1919.0	1804.8	1698.7
12.5°	2162.8	2165.7	2124.5	2085.4	2041.2	2015.5	1967.6	1981.6	1899.1	1795.9	1666.3
15°	2102.4	2109.7	2065.5	2042.0	2097.2	2013.2	1969.8	1961.7	1869.6	1788.6	1647.1
17.5°	2120.8	2125.9	2123.0	2075.9	1994.8	2054.5	1974.2	1932.2	1868.1	1775.3	1643.4
20°	2112.0	2116.4	2064.1	2044.9	2069.2	1969.8	1968.3	1916.7	1877.0	1762.0	1608.8
22.5°	2149.5	2155.4	2107.5	2054.5	2012.5	2025.0	1997.8	1910.8	1863.7	1737.7	1576.4
25°	2146.6	2153.9	2115.6	2061.9	2031.7	1986.0	1910.1	1878.4	1832.8	1705.3	1527.8
27.5°	2182.7	2174.6	2087.6	2057.4	2028.7	1963.9	1937.4	1855.6	1788.6	1653.0	1486.5
30°	2264.4	2251.2	2209.2	2092.1	2008.1	1983.0	1916.0	1843.1	1726.7	1604.4	1451.9
32.5°	2183.4	2164.3	2136.3	2157.6	2044.2	1943.3	1861.5	1775.3	1696.5	1546.9	1398.1
35°	2190.0	2181.2	2103.1	2094.3	2105.3	1932.9	1831.3	1719.3	1653.0	1488.0	1345.8
37.5°	2483.2	2438.3	2263.7	2100.2	2048.6	1967.6	1835.7	1739.9	1608.8	1436.5	1288.4
40°	2207.7	2194.5	2175.3	2271.8	2008.8	1959.5	1781.9	1731.8	1543.3	1378.3	1220.6
42.5°	2204.8	2190.8	2168.7	2104.6	2123.7	1905.7	1766.5	1672.9	1488.0	1305.3	1150.6
45°	2310.1	2299.8	2179.0	2122.3	2024.3	1896.1	1740.7	1608.1	1430.6	1230.9	1069.6
47.5°	2559.8	2514.9	2265.2	2089.1	1984.5	1924.8	1723.7	1563.2	1359.1	1145.5	986.4
50°	2215.1	2211.4	2332.9	2254.9	1931.5	1842.3	1693.5	1505.7	1306.8	1068.1	902.4
52.5°	2205.5	2197.4	2201.8	2138.5	2015.5	1780.5	1657.4	1431.3	1234.6	990.0	833.9
55°	2092.1	2072.9	2038.3	2045.7	2028.7	1735.5	1579.4	1384.9	1175.7	926.0	769.1
57.5°	2185.6	2187.8	2060.4	1963.9	1884.3	1781.9	1518.2	1309.7	1121.2	856.0	693.9
59°	2730.0	2709.4	2391.1	2012.5	1843.1	1755.4	1451.2	1270.0	1080.7	816.2	666.7
60°	2498.7	2519.3	2579.7	2115.6	1846.8	1699.4	1422.5	1245.7	1052.7	790.4	651.2
62.5°	2406.6	2394.8	2272.5	2238.7	1955.0	1662.6	1422.5	1201.5	990.0	738.9	590.1
65°	2193.7	2164.3	2137.7	2106.1	1983.8	1664.1	1393.0	1153.6	927.4	676.2	514.9
67.5°	2152.5	2148.0	2085.4	1980.8	1857.1	1654.5	1301.6	1084.3	868.5	596.7	432.4
70°	2034.6	2036.1	1981.6	1898.3	1762.0	1552.8	1278.1	1030.6	803.7	513.4	352.9
72.5°	1958.0	1958.0	1902.7	1819.5	1698.0	1442.3	1200.7	980.5	724.1	439.0	284.3
75°	1790.0	1801.1	1770.9	1694.3	1583.0	1367.2	1107.9	884.0	629.1	363.2	221.0
77.5°	1723.7	1725.2	1664.1	1570.5	1453.4	1247.9	1009.2	794.1	554.0	290.2	165.7
80°	1656.7	1665.5	1596.3	1492.4	1365.0	1161.7	922.3	710.9	472.9	220.3	120.8
82.5°	1334.8	1334.8	1293.5	1270.0	1161.7	995.2	786.0	618.0	387.5	159.9	87.7
85°	1292.8	1280.3	1233.1	1166.8	1071.1	891.3	661.5	506.1	302.8	115.7	63.4
87.5°	952.5	972.4	949.5	920.8	860.4	717.5	548.8	392.6	233.5	84.7	47.1
90°	797.8	810.3	778.6	744.0	682.9	577.5	433.1	309.4	170.9	61.9	36.8
92.5°	677.0	685.1	665.9	635.0	568.0	475.9	351.4	229.1	127.4	46.4	30.9
95°	618.0	619.5	590.1	537.0	484.0	398.5	278.5	184.2	100.2	38.3	28.0
97.5°	525.2	539.2	510.5	470.0	418.4	340.3	227.6	146.6	81.0	33.1	25.0
100°	455.2	458.9	432.4	397.8	351.4	285.1	187.1	120.8	66.3	30.9	23.6
102.5°	389.7	399.3	375.0	333.7	291.7	232.8	157.6	105.3	56.7	29.5	23.6
105°	315.3	316.0	298.3	274.0	249.0	190.1	134.1	89.1	47.9	28.7	23.6
107.5°	268.1	273.3	263.0	238.7	213.6	166.5	116.4	75.1	42.0	28.0	23.6



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
110°	243.8	245.3	235.7	218.0	189.3	144.4	100.2	63.4	39.0	28.0	22.1
112.5°	228.4	228.4	216.6	198.2	165.7	126.7	86.2	55.2	37.6	27.3	21.4
115°	199.6	202.6	190.8	174.6	144.4	110.5	75.9	49.4	36.8	25.8	19.9
117.5°	176.8	175.3	168.0	151.7	126.0	95.8	68.5	46.4	35.4	24.3	18.4
120°	152.5	154.0	146.6	132.6	109.0	84.0	61.1	43.5	33.9	22.8	16.9
122.5°	135.5	135.5	130.4	115.7	93.6	73.7	53.8	41.3	32.4	21.4	14.7
125°	117.9	119.3	113.4	99.4	81.0	64.1	48.6	39.8	31.7	19.9	13.3
127.5°	102.4	103.1	97.2	84.7	70.0	56.7	45.7	38.3	30.9	17.7	11.8
130°	88.4	87.7	81.8	72.2	61.9	53.0	44.9	36.8	28.0	15.5	10.3
132.5°	74.4	73.7	69.2	63.4	56.0	51.6	43.5	35.4	25.8	13.3	8.8
135°	63.4	63.4	60.4	57.5	53.0	48.6	42.0	33.1	23.6	11.8	7.4
137.5°	56.7	56.7	56.0	54.5	50.8	46.4	39.8	31.7	21.4	10.3	5.9
140°	53.8	54.5	53.8	53.0	49.4	44.2	38.3	29.5	19.2	8.8	5.2
142.5°	55.2	54.5	53.8	52.3	47.1	42.7	36.1	27.3	16.9	7.4	4.4
145°	56.0	56.0	53.8	50.1	45.7	39.8	33.1	24.3	14.0	5.9	3.7
147.5°	54.5	53.8	50.8	46.4	41.3	36.1	29.5	20.6	11.8	4.4	2.9
150°	51.6	50.8	46.4	41.3	37.6	32.4	25.0	17.7	9.6	3.7	2.9
152.5°	45.7	44.9	41.3	36.1	31.7	26.5	21.4	14.0	7.4	3.7	2.2
155°	36.1	35.4	32.4	28.7	25.0	22.1	17.7	11.8	6.6	2.9	2.2
157.5°	26.5	26.5	25.0	22.8	19.9	18.4	14.0	9.6	4.4	2.2	1.5
160°	22.1	22.1	20.6	19.2	16.9	14.7	11.0	7.4	3.7	2.2	1.5
162.5°	18.4	18.4	16.9	15.5	13.3	11.0	8.1	5.2	2.9	1.5	1.5
165°	14.7	14.7	14.0	12.5	10.3	8.1	5.9	3.7	2.9	1.5	1.5
167.5°	11.0	11.0	9.6	8.8	6.6	5.2	3.7	2.9	2.2	1.5	1.5
170°	6.6	6.6	5.9	5.2	3.7	2.9	2.9	2.2	2.2	1.5	1.5
172.5°	2.2	2.9	2.2	2.2	2.2	2.2	2.2	2.2	1.5	1.5	1.5
175°	0.7	0.7	1.5	1.5	1.5	2.2	2.2	2.2	1.5	1.5	1.5
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	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):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7	1779.7
2.5°	1752.5	1723.0	1705.3	1686.2	1678.1	1661.9	1643.4	1647.9	1641.2	1651.6
5°	1726.7	1679.5	1646.4	1600.0	1569.0	1544.7	1524.8	1496.1	1493.2	1496.9
7.5°	1681.0	1627.2	1564.6	1505.0	1484.3	1490.2	1446.0	1415.1	1387.1	1379.0
10°	1638.3	1560.9	1483.6	1470.3	1377.5	1331.1	1281.0	1230.2	1219.1	1205.9
12.5°	1614.0	1513.1	1437.2	1337.0	1246.4	1149.9	1095.4	1093.9	1102.8	1099.8
15°	1589.7	1462.2	1375.3	1225.0	1099.1	1067.4	1036.5	989.3	951.0	951.7
17.5°	1575.7	1421.7	1272.9	1109.4	1030.6	943.6	824.3	788.9	783.8	785.3
20°	1535.9	1374.6	1189.7	1043.8	920.8	770.5	704.2	624.7	604.0	594.5
22.5°	1483.6	1310.5	1096.1	963.5	767.6	644.6	542.9	499.4	476.6	467.0
25°	1440.9	1228.7	1016.6	839.8	663.7	525.2	436.8	403.7	387.5	383.8
27.5°	1389.3	1151.4	951.0	705.0	549.5	430.9	363.2	334.4	321.9	316.8
30°	1334.8	1068.9	851.6	615.8	465.6	361.0	304.2	277.0	265.9	263.7
32.5°	1274.4	991.5	741.1	526.7	386.0	305.0	253.4	230.6	219.5	219.5
35°	1210.3	912.0	636.5	450.8	327.8	250.5	210.7	183.4	173.8	171.6
37.5°	1135.2	840.5	559.1	378.6	272.6	208.5	168.7	149.5	138.5	138.5
40°	1071.1	769.8	485.4	318.2	223.9	165.7	136.3	116.4	109.8	109.8
42.5°	986.4	680.7	421.4	266.7	183.4	137.0	109.0	93.6	88.4	87.7
45°	891.3	592.3	350.6	218.8	149.5	109.0	86.9	73.7	68.5	67.0
47.5°	795.6	504.6	293.9	181.2	120.8	87.7	69.2	58.9	54.5	53.8
50°	711.6	437.6	241.6	146.6	98.7	70.0	53.8	46.4	42.0	42.0
52.5°	641.6	380.1	207.0	121.5	79.6	53.8	42.7	36.1	36.1	36.8
55°	584.9	335.2	172.4	102.4	64.8	43.5	31.7	29.5	31.7	31.7
57.5°	531.1	281.4	144.4	86.9	50.8	33.9	24.3	24.3	25.0	25.0
59°	500.9	254.9	129.6	78.1	44.2	28.7	19.9	19.9	19.9	19.9
60°	477.3	235.7	121.5	72.9	39.8	25.0	17.7	16.9	16.2	15.5
62.5°	416.2	187.1	102.4	58.2	30.2	16.2	10.3	9.6	8.1	8.8
65°	344.0	153.2	84.7	46.4	22.8	8.8	3.7	2.2	0.7	0.7
67.5°	271.8	125.2	70.0	36.8	14.7	2.2	0.0	0.0	0.0	0.0
70°	221.0	100.9	56.7	27.3	8.1	0.0	0.0	0.0	0.0	0.0
72.5°	170.2	82.5	45.7	19.2	2.2	0.0	0.0	0.0	0.0	0.0
75°	128.2	65.6	35.4	11.8	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	98.0	52.3	27.3	7.4	0.0	0.0	0.0	0.0	0.0	0.0
80°	72.9	40.5	20.6	4.4	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	56.0	31.7	16.2	2.9	0.0	0.0	0.0	0.0	0.0	0.0
85°	42.7	24.3	11.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	33.9	19.2	9.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0
90°	26.5	15.5	7.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	22.8	13.3	5.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0
95°	20.6	11.8	4.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	19.2	11.0	4.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0
100°	18.4	10.3	3.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	18.4	9.6	2.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0
105°	18.4	9.6	2.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	18.4	8.8	2.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P979130  
 CATALOG NUMBER: WPSLED15S-40W-4000K

**CANDELA DISTRIBUTION (continued):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
110°	17.7	7.4	2.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0
112.5°	16.9	6.6	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0
115°	15.5	5.2	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	13.3	2.9	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0
120°	11.0	2.2	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	9.6	1.5	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0
125°	8.8	1.5	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	8.1	1.5	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0
130°	6.6	2.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	5.9	2.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
135°	5.2	2.2	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
137.5°	4.4	2.2	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
140°	3.7	2.2	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
142.5°	2.9	2.2	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
145°	2.9	2.2	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
147.5°	2.2	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
150°	2.2	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0
152.5°	2.2	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
155°	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
157.5°	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
160°	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0
162.5°	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
165°	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	1.5	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
170°	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	1.5	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Lumark

Report Number: SP1-2407-168-3

Test Date: 08/08/2024

Luminaire Tested: LSDL-92S-100W 4000k

Data in this report applies to families of products including LSDL-92S-100W 4000k.

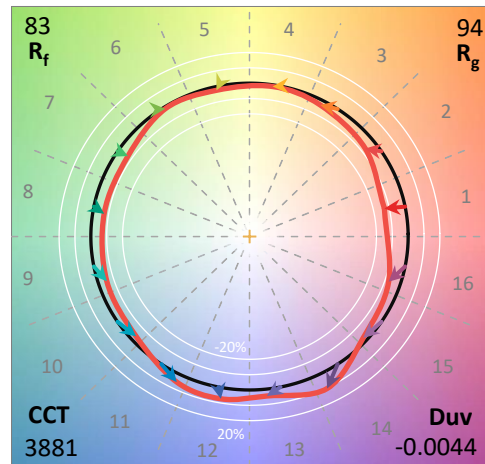
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-168-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 08/12/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Lumark  
 Catalog Number: **LSDL-92S-100W 4000k**  
 Description: Lumark Wallpack 100W

**Spectral Parameters**

CCT (K): 3881  
 CIE u': 0.2297  
 CIE v': 0.4983  
 Duv: -0.0044  
 CIE x: 0.3825  
 CIE y: 0.3688  
 CIE z: 0.2487  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 582  
 Purity: 25.44833  
 Rf: 82.8  
 Rg: 93.7

CRI (Ra):	82.7		
R1:	82.3	R9:	4.8
R2:	93.7	R10:	84.4
R3:	93.3	R11:	77.9
R4:	79.0	R12:	66.7
R5:	82.7	R13:	85.8
R6:	89.4	R14:	97.2
R7:	81.3	R15:	76.3
R8:	59.9		



**Test Conditions**

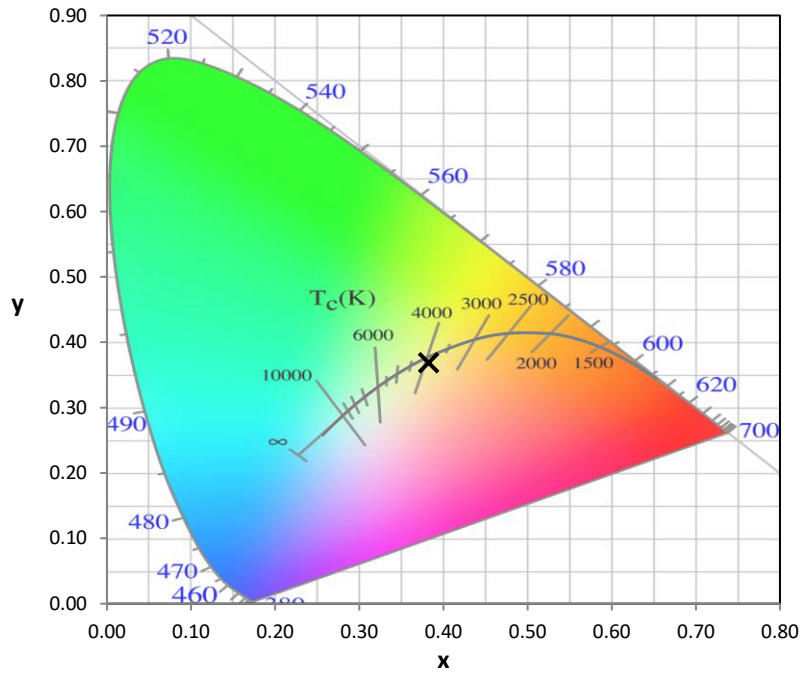
Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-168-3

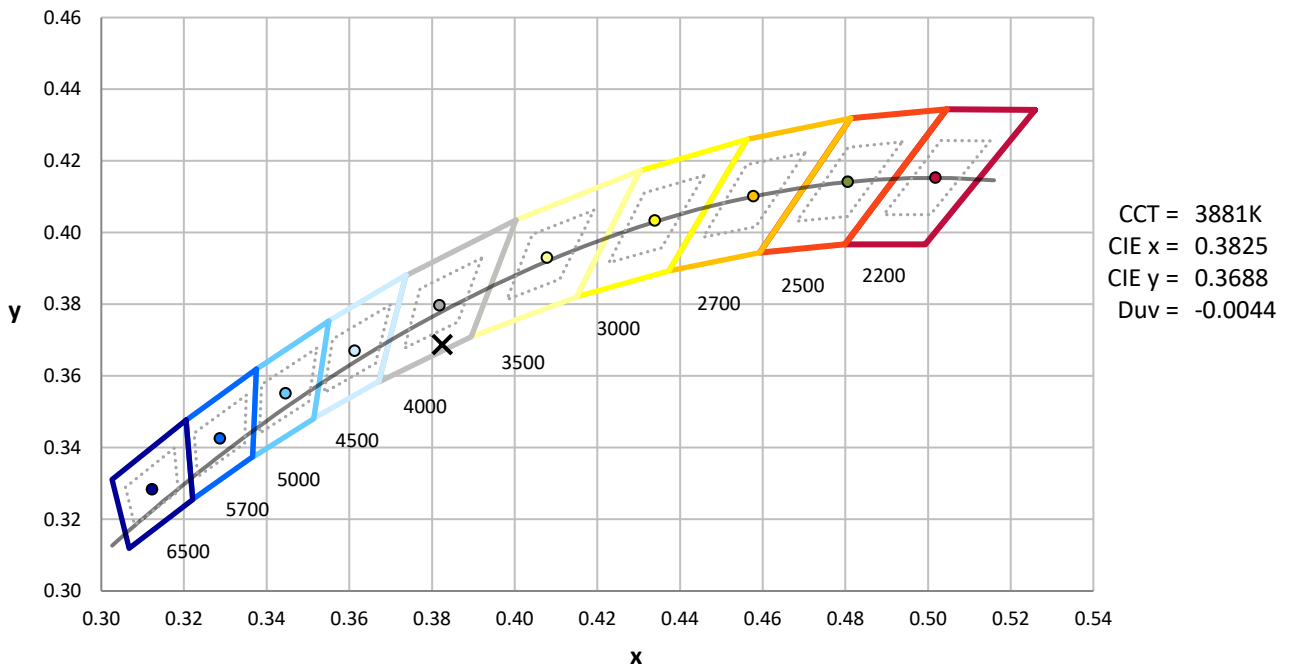
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-168-3

**CIE 1931 Chromaticity Diagram**



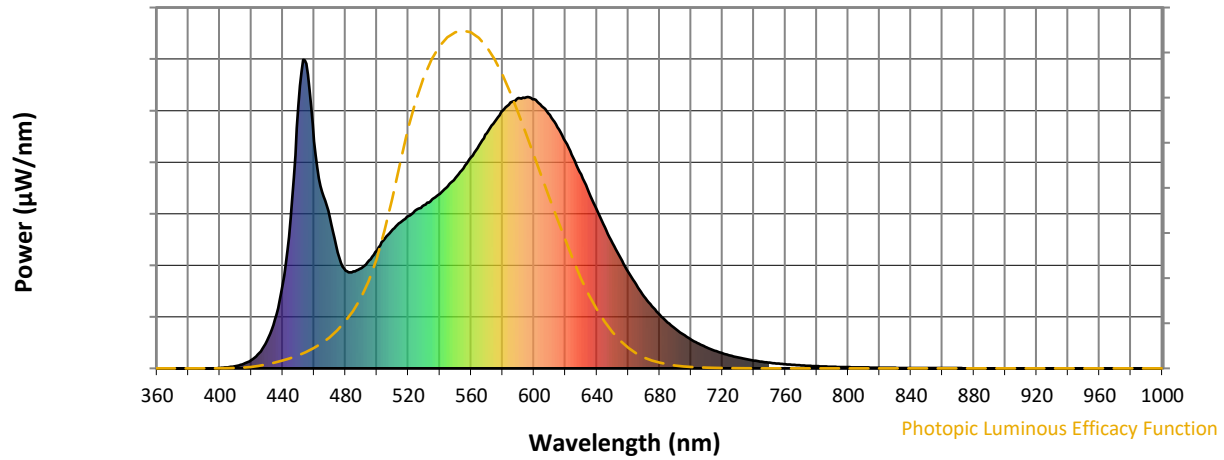
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-168-3

**Photopic Flux vs. Wavelength**

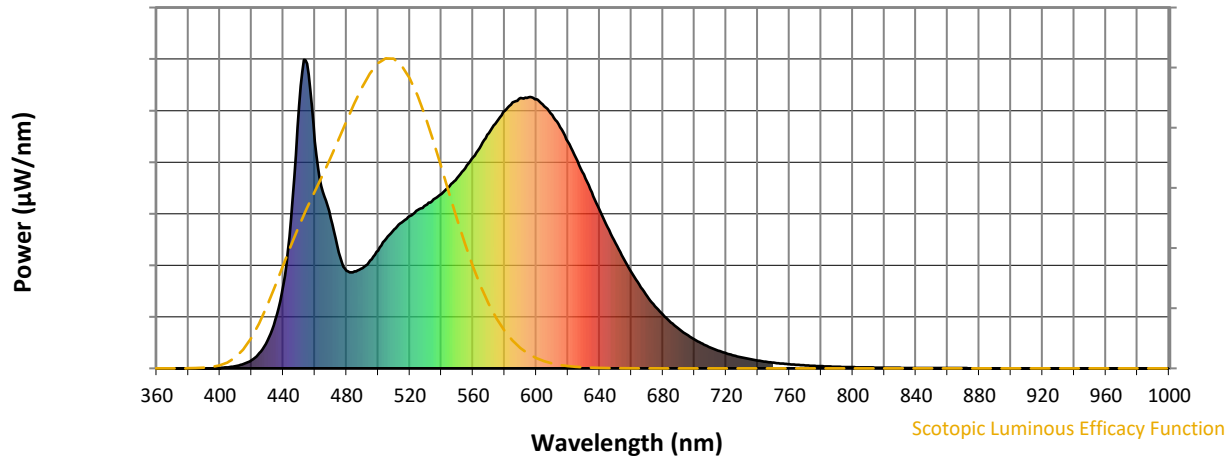


**Photopic Lumens: NR**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	NR	630	629	NR	760	13	NR	890	0	NR
375	0	NR	505	421	NR	635	570	NR	765	11	NR	895	0	NR
380	0	NR	510	450	NR	640	514	NR	770	10	NR	900	0	NR
385	0	NR	515	474	NR	645	458	NR	775	8	NR	905	0	NR
390	0	NR	520	494	NR	650	406	NR	780	7	NR	910	0	NR
395	0	NR	525	513	NR	655	358	NR	785	6	NR	915	0	NR
400	2	NR	530	529	NR	660	312	NR	790	5	NR	920	0	NR
405	4	NR	535	548	NR	665	271	NR	795	4	NR	925	0	NR
410	8	NR	540	565	NR	670	234	NR	800	4	NR	930	0	NR
415	14	NR	545	591	NR	675	202	NR	805	3	NR	935	0	NR
420	27	NR	550	618	NR	680	174	NR	810	3	NR	940	0	NR
425	50	NR	555	649	NR	685	149	NR	815	2	NR	945	0	NR
430	89	NR	560	685	NR	690	129	NR	820	2	NR	950	0	NR
435	159	NR	565	723	NR	695	110	NR	825	2	NR	955	0	NR
440	272	NR	570	762	NR	700	93	NR	830	2	NR	960	0	NR
445	486	NR	575	800	NR	705	80	NR	835	1	NR	965	0	NR
450	852	NR	580	835	NR	710	67	NR	840	1	NR	970	0	NR
455	988	NR	585	862	NR	715	57	NR	845	1	NR	975	0	NR
460	735	NR	590	876	NR	720	49	NR	850	1	NR	980	0	NR
465	572	NR	595	879	NR	725	42	NR	855	1	NR	985	0	NR
470	486	NR	600	872	NR	730	35	NR	860	1	NR	990	0	NR
475	375	NR	605	850	NR	735	30	NR	865	1	NR	995	0	NR
480	317	NR	610	821	NR	740	25	NR	870	1	NR	1000	0	NR
485	314	NR	615	782	NR	745	22	NR	875	0	NR			

REPORT NUMBER: SP1-2407-168-3

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

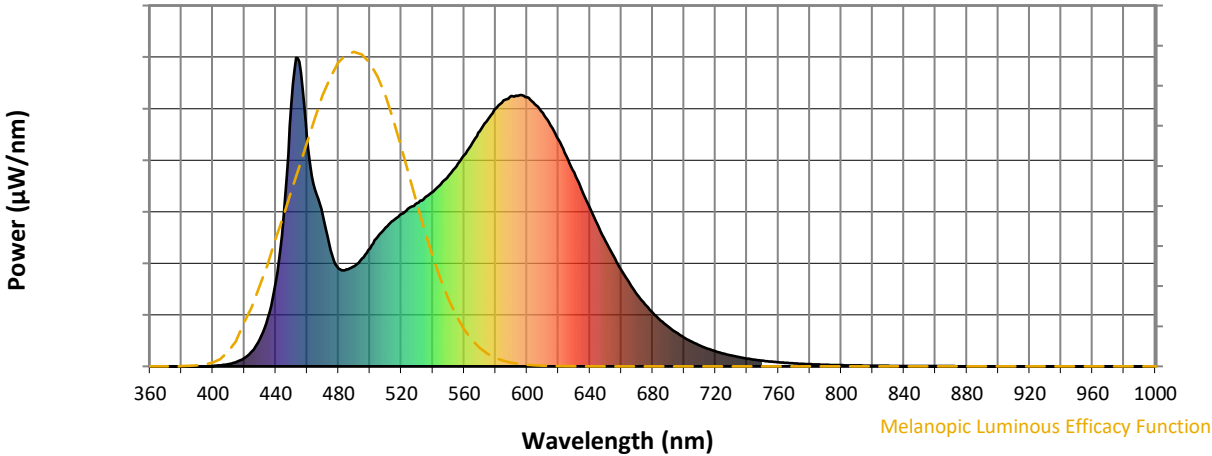
**S/P: 1.72**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	NR	630	629	NR	760	13	NR	890	0	NR
375	0	NR	505	421	NR	635	570	NR	765	11	NR	895	0	NR
380	0	NR	510	450	NR	640	514	NR	770	10	NR	900	0	NR
385	0	NR	515	474	NR	645	458	NR	775	8	NR	905	0	NR
390	0	NR	520	494	NR	650	406	NR	780	7	NR	910	0	NR
395	0	NR	525	513	NR	655	358	NR	785	6	NR	915	0	NR
400	2	NR	530	529	NR	660	312	NR	790	5	NR	920	0	NR
405	4	NR	535	548	NR	665	271	NR	795	4	NR	925	0	NR
410	8	NR	540	565	NR	670	234	NR	800	4	NR	930	0	NR
415	14	NR	545	591	NR	675	202	NR	805	3	NR	935	0	NR
420	27	NR	550	618	NR	680	174	NR	810	3	NR	940	0	NR
425	50	NR	555	649	NR	685	149	NR	815	2	NR	945	0	NR
430	89	NR	560	685	NR	690	129	NR	820	2	NR	950	0	NR
435	159	NR	565	723	NR	695	110	NR	825	2	NR	955	0	NR
440	272	NR	570	762	NR	700	93	NR	830	2	NR	960	0	NR
445	486	NR	575	800	NR	705	80	NR	835	1	NR	965	0	NR
450	852	NR	580	835	NR	710	67	NR	840	1	NR	970	0	NR
455	988	NR	585	862	NR	715	57	NR	845	1	NR	975	0	NR
460	735	NR	590	876	NR	720	49	NR	850	1	NR	980	0	NR
465	572	NR	595	879	NR	725	42	NR	855	1	NR	985	0	NR
470	486	NR	600	872	NR	730	35	NR	860	1	NR	990	0	NR
475	375	NR	605	850	NR	735	30	NR	865	1	NR	995	0	NR
480	317	NR	610	821	NR	740	25	NR	870	1	NR	1000	0	NR
485	314	NR	615	782	NR	745	22	NR	875	0	NR			



REPORT NUMBER: SP1-2407-168-3

Melanopic Flux vs. Wavelength



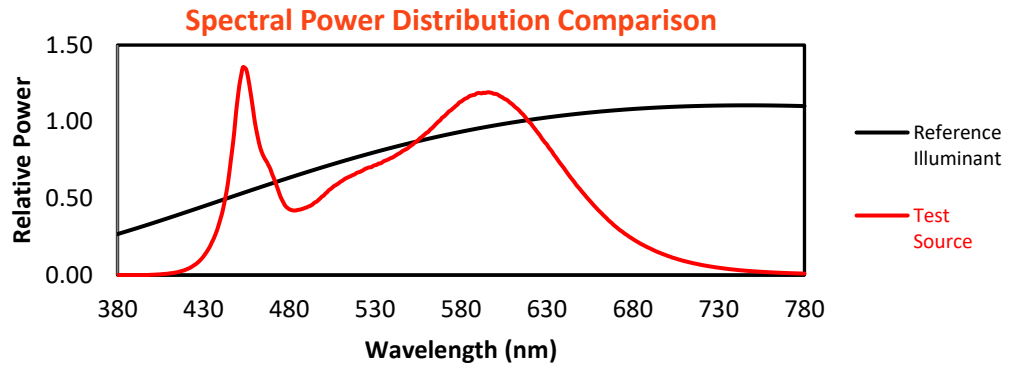
Melanopic Lumens: NR

M/P: 3.62

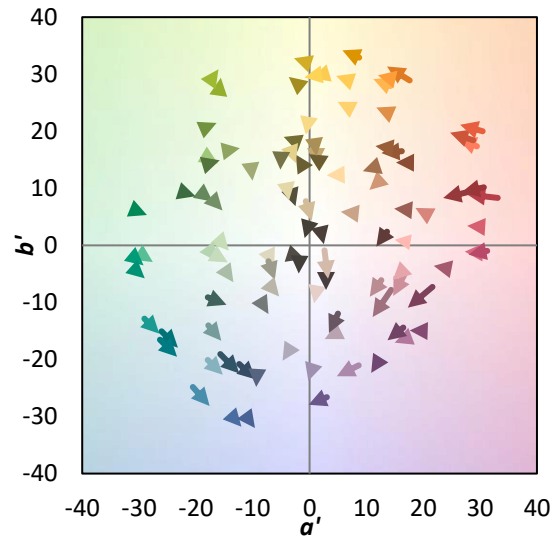
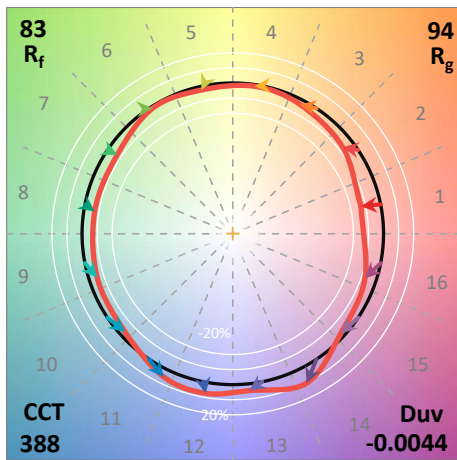
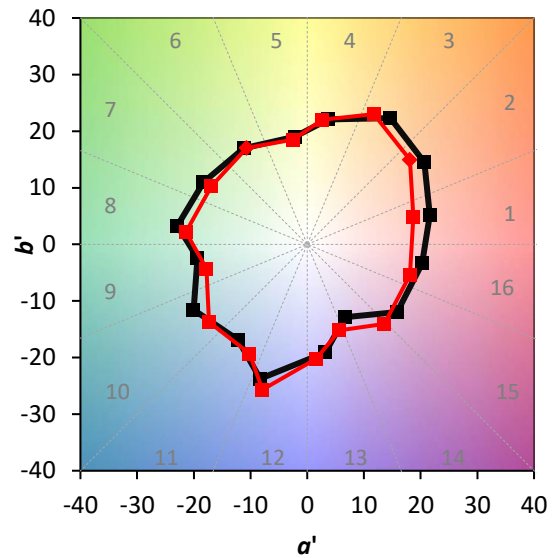
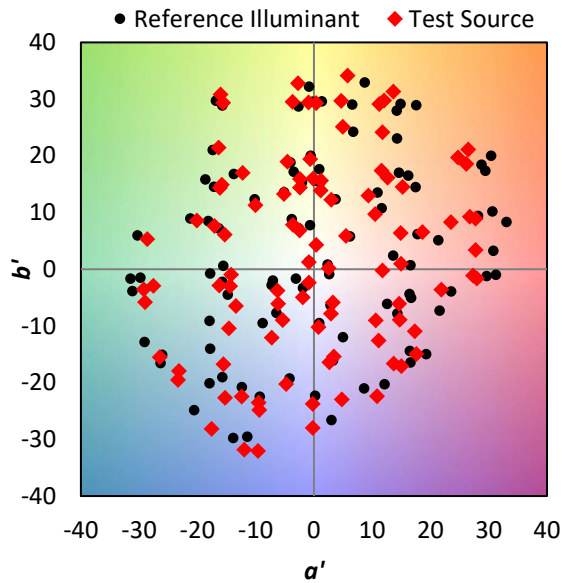
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	NR	630	629	NR	760	13	NR	890	0	NR
375	0	NR	505	421	NR	635	570	NR	765	11	NR	895	0	NR
380	0	NR	510	450	NR	640	514	NR	770	10	NR	900	0	NR
385	0	NR	515	474	NR	645	458	NR	775	8	NR	905	0	NR
390	0	NR	520	494	NR	650	406	NR	780	7	NR	910	0	NR
395	0	NR	525	513	NR	655	358	NR	785	6	NR	915	0	NR
400	2	NR	530	529	NR	660	312	NR	790	5	NR	920	0	NR
405	4	NR	535	548	NR	665	271	NR	795	4	NR	925	0	NR
410	8	NR	540	565	NR	670	234	NR	800	4	NR	930	0	NR
415	14	NR	545	591	NR	675	202	NR	805	3	NR	935	0	NR
420	27	NR	550	618	NR	680	174	NR	810	3	NR	940	0	NR
425	50	NR	555	649	NR	685	149	NR	815	2	NR	945	0	NR
430	89	NR	560	685	NR	690	129	NR	820	2	NR	950	0	NR
435	159	NR	565	723	NR	695	110	NR	825	2	NR	955	0	NR
440	272	NR	570	762	NR	700	93	NR	830	2	NR	960	0	NR
445	486	NR	575	800	NR	705	80	NR	835	1	NR	965	0	NR
450	852	NR	580	835	NR	710	67	NR	840	1	NR	970	0	NR
455	988	NR	585	862	NR	715	57	NR	845	1	NR	975	0	NR
460	735	NR	590	876	NR	720	49	NR	850	1	NR	980	0	NR
465	572	NR	595	879	NR	725	42	NR	855	1	NR	985	0	NR
470	486	NR	600	872	NR	730	35	NR	860	1	NR	990	0	NR
475	375	NR	605	850	NR	735	30	NR	865	1	NR	995	0	NR
480	317	NR	610	821	NR	740	25	NR	870	1	NR	1000	0	NR
485	314	NR	615	782	NR	745	22	NR	875	0	NR			

**Summary**

$R_f = 82.8$   
 $R_g = 93.7$   
 CIE  $R_a = 82.7$   
 $R_9 = 4.8$

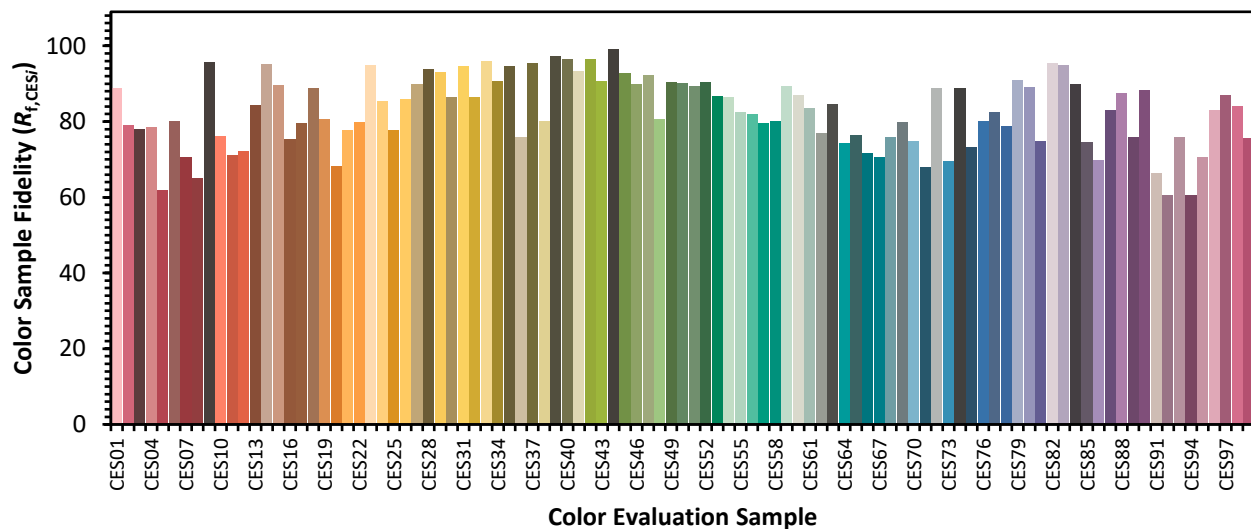


**Color Vector Graphics**

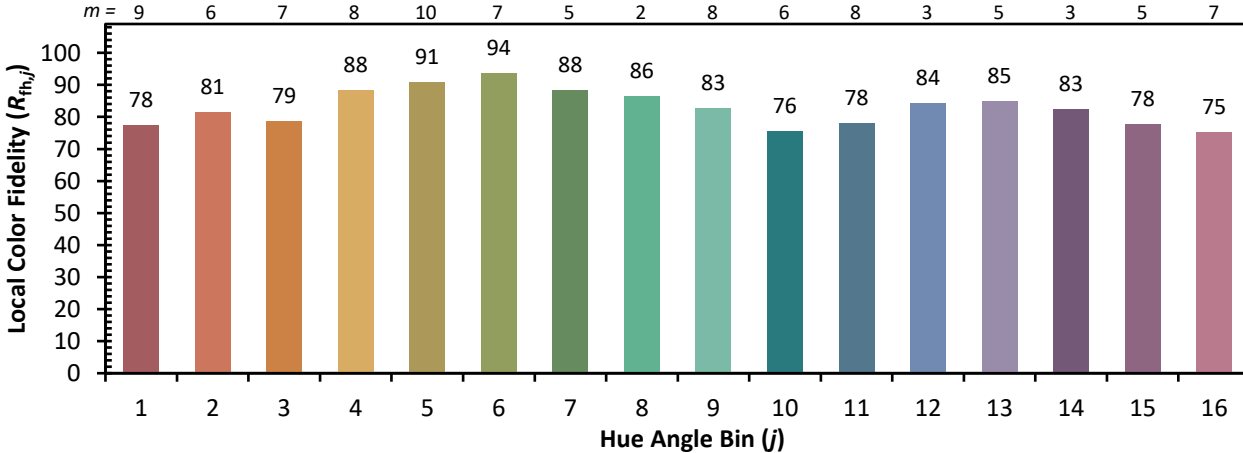
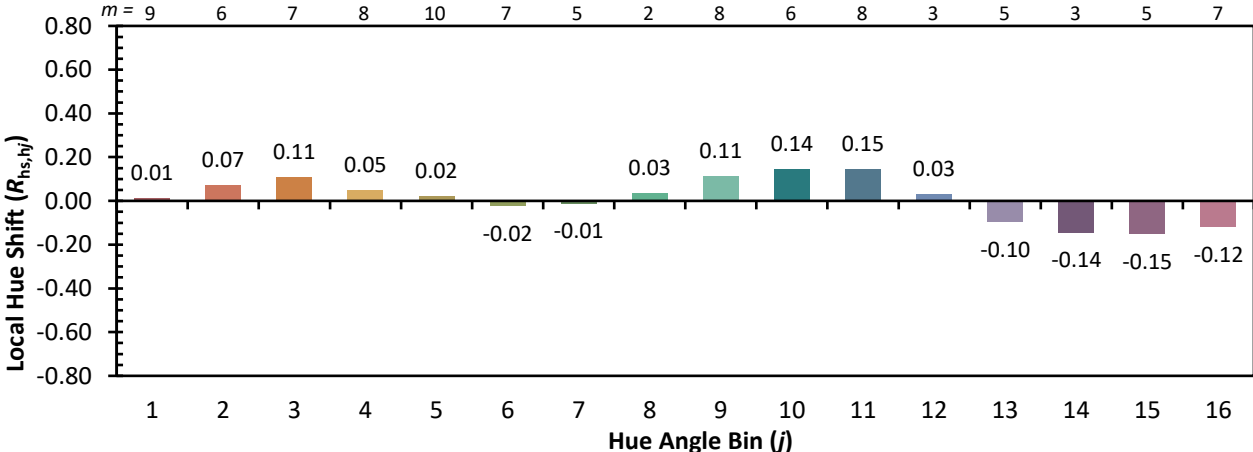
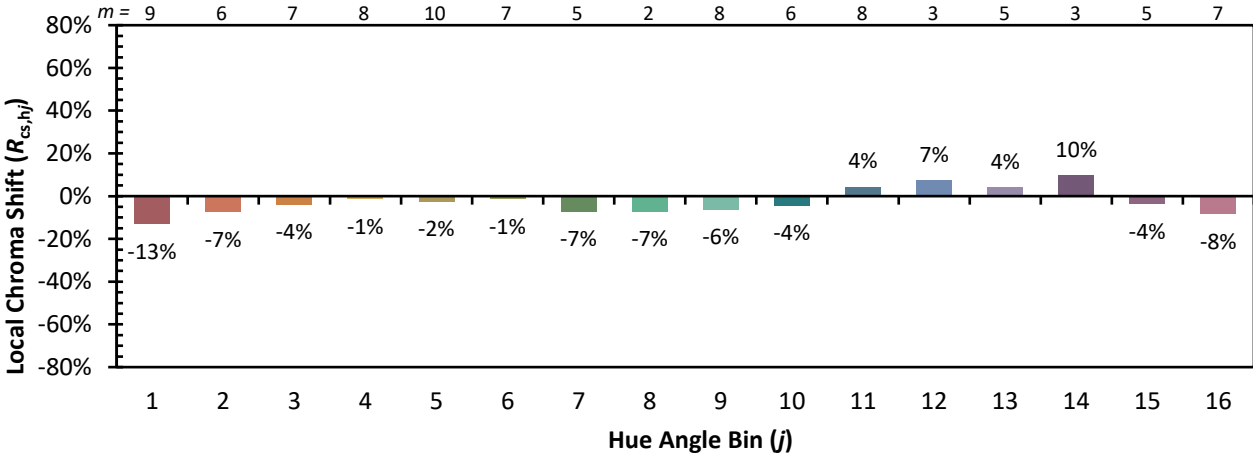


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

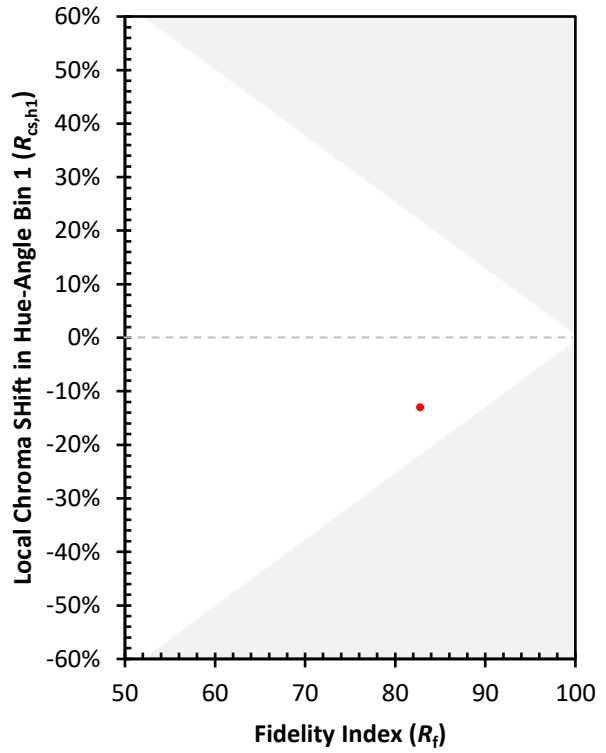
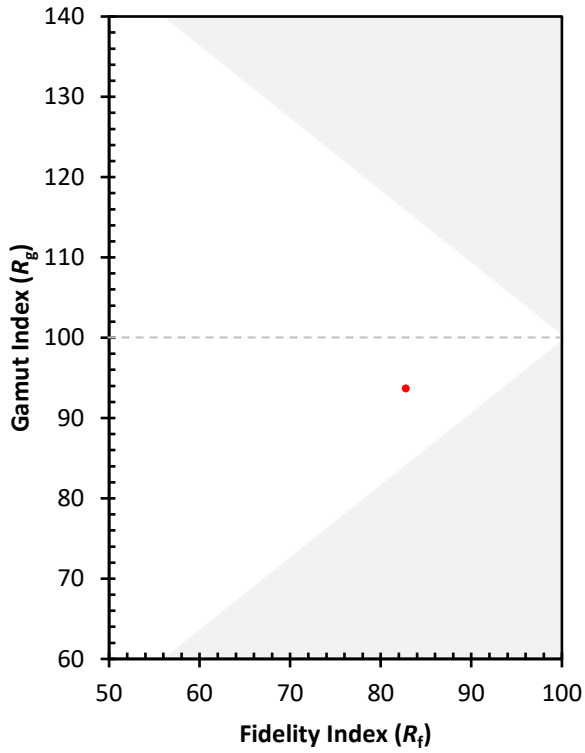
CES01 = 86	CES26 = 86	CES51 = 89	CES76 = 80
CES02 = 62	CES27 = 90	CES52 = 91	CES77 = 83
CES03 = 31	CES28 = 94	CES53 = 87	CES78 = 79
CES04 = 70	CES29 = 93	CES54 = 86	CES79 = 91
CES05 = 48	CES30 = 86	CES55 = 83	CES80 = 89
CES06 = 51	CES31 = 95	CES56 = 82	CES81 = 75
CES07 = 41	CES32 = 86	CES57 = 80	CES82 = 95
CES08 = 40	CES33 = 96	CES58 = 80	CES83 = 95
CES09 = 29	CES34 = 91	CES59 = 89	CES84 = 90
CES10 = 75	CES35 = 95	CES60 = 87	CES85 = 75
CES11 = 58	CES36 = 76	CES61 = 83	CES86 = 70
CES12 = 64	CES37 = 95	CES62 = 77	CES87 = 83
CES13 = 43	CES38 = 80	CES63 = 85	CES88 = 88
CES14 = 74	CES39 = 97	CES64 = 74	CES89 = 76
CES15 = 71	CES40 = 96	CES65 = 76	CES90 = 88
CES16 = 47	CES41 = 93	CES66 = 72	CES91 = 66
CES17 = 49	CES42 = 96	CES67 = 71	CES92 = 60
CES18 = 56	CES43 = 91	CES68 = 76	CES93 = 76
CES19 = 72	CES44 = 99	CES69 = 80	CES94 = 61
CES20 = 65	CES45 = 93	CES70 = 75	CES95 = 71
CES21 = 86	CES46 = 90	CES71 = 68	CES96 = 83
CES22 = 78	CES47 = 92	CES72 = 89	CES97 = 87
CES23 = 91	CES48 = 81	CES73 = 70	CES98 = 84
CES24 = 90	CES49 = 90	CES74 = 89	CES99 = 76
CES25 = 71	CES50 = 90	CES75 = 73	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)