

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: P979135

Luminaire Tested: **WPSLED15S-30W-4000K**

Issue Date: 03/31/2025



Test Information

Test Method: LM-79-08
Report Number: P979135
Test Lab: Cooper Lighting Solutions
Issue Date: 03/31/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: WPSLED15S-30W-4000K
Description: LUMARK WALL PACK LED SMALL 80CRI CCT AND LUMEN SELECTIVE FIXTURE
OPERATING @30W-4000K
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

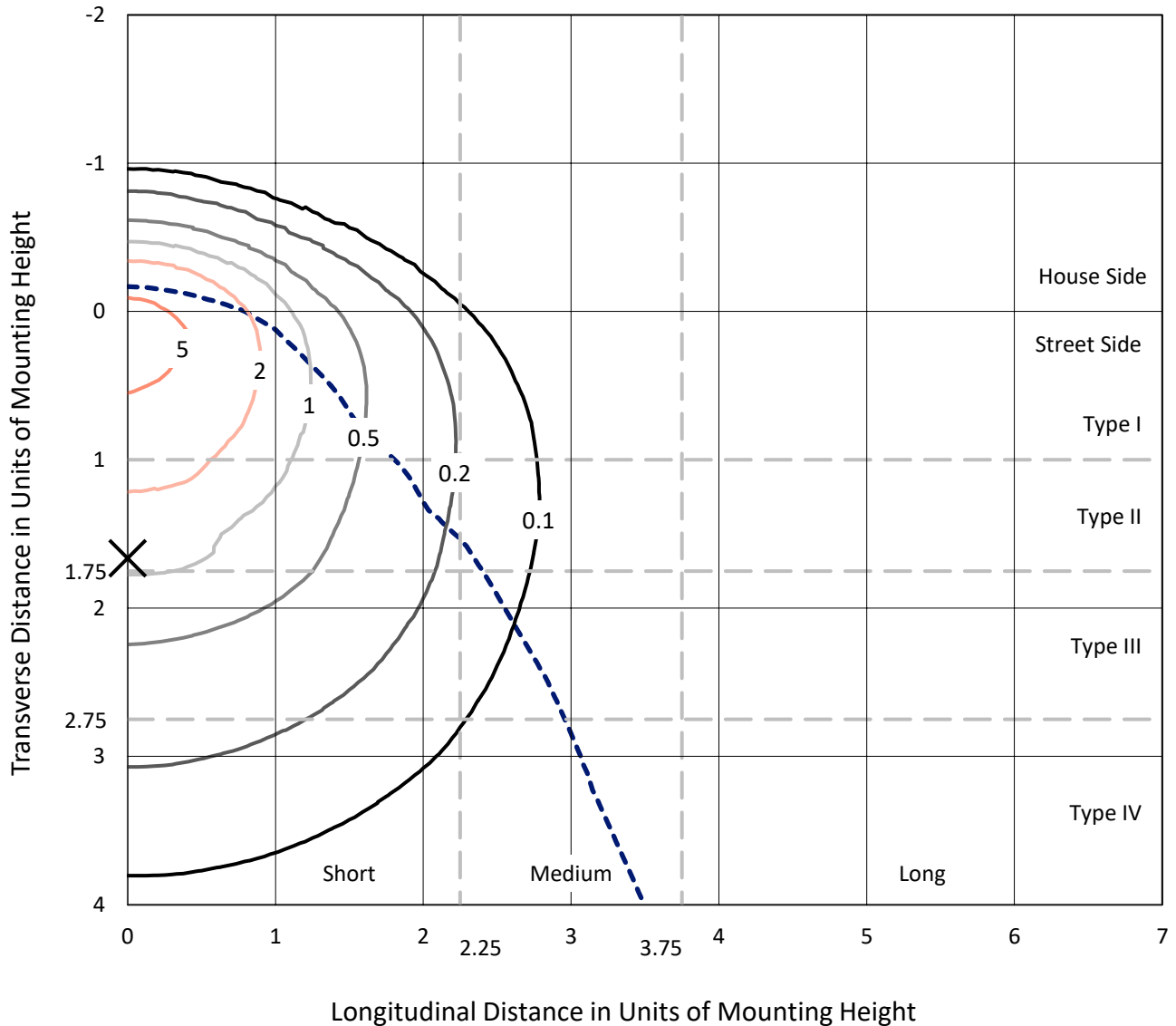
Lumens per Lamp: N/A
Luminaire Lumens: 4605 lumens
Efficiency: N/A
Efficacy: 151.5 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 0.61' x L: 0.12' x H: 0.44')
IES Classification: Type IV - Short
BUG Rating: B1 - U3 - G3

Input Watts (W): 30.4
Input Voltage (V): 120
Input Current (A_{in}): 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

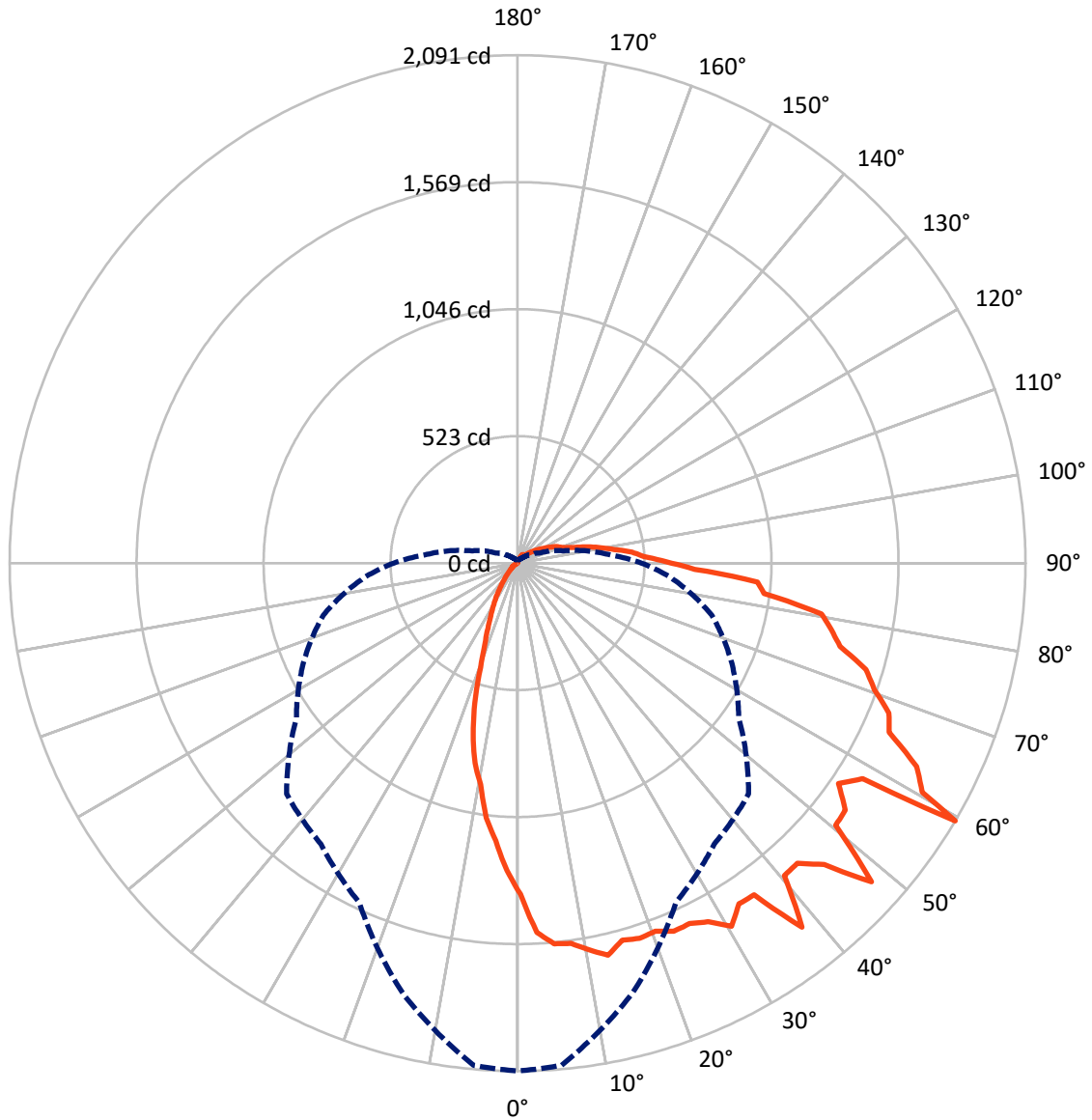
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 6.9 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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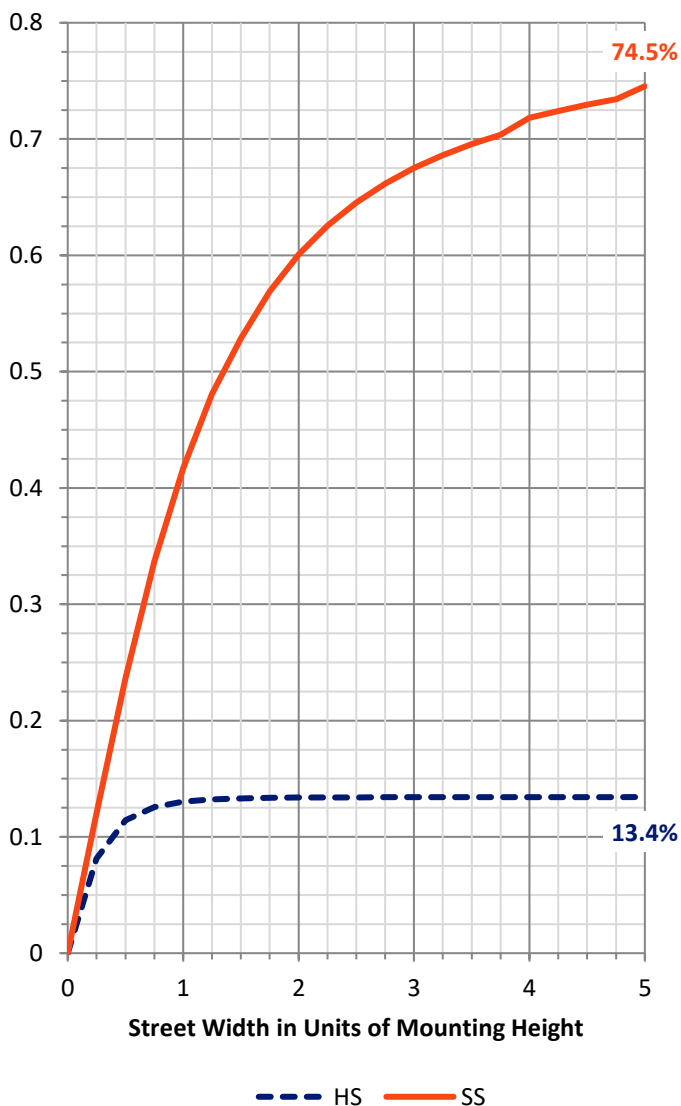
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	625.6	5.7	631.3
	% Fixture	13.6	0.1	13.7
Street Side	Lumens	3650.0	323.7	3973.7
	% Fixture	79.3	7.0	86.3
Total	Lumens	4275.6	329.4	4605.0
	% Fixture	92.8	7.2	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	128.5	2.8
10°-20°	343.0	7.4
20°-30°	484.6	10.5
30°-40°	579.1	12.6
40°-50°	631.5	13.7
50°-60°	637.3	13.8
60°-70°	627.4	13.6
70°-80°	515.8	11.2
80°-90°	328.4	7.1
90°-100°	155.4	3.4
100°-110°	78.3	1.7
110°-120°	44.1	1.0
120°-130°	24.4	0.5
130°-140°	13.6	0.3
140°-150°	8.7	0.2
150°-160°	3.9	0.1
160°-170°	1.0	0.0
170°-180°	0.1	0.0
0°-90°	4275.6	92.8
0°-180°	4605.0	100.0



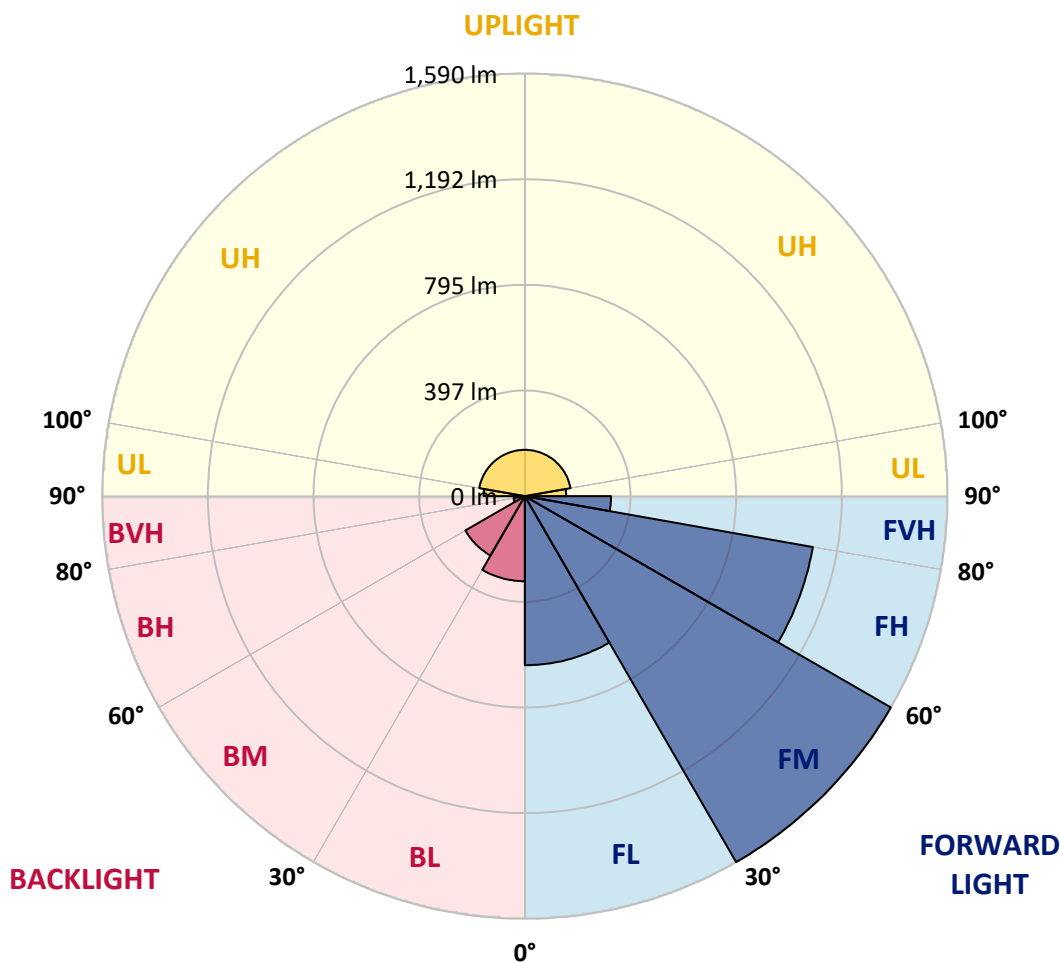
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	636.0	13.8			
FM (30°-60°)	1589.7	34.5			
FH (60°-80°)	1100.2	23.9			G1/1800
FVH (80°-90°)	324.1	7.0			G3/500
BL (0°-30°)	320.1	7.0	B1/500		
BM (30°-60°)	258.2	5.6	B1/1000		
BH (60°-80°)	43.0	0.9	B0/110		G0/110
BVH (80°-90°)	4.3	0.1			G0/10
UL (90°-100°)	155.4	3.4		U3/500	
UH (100°-180°)	174.0	3.8		U3/500	

BUG Rating: B1-U3-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4
2.5°	1522.6	1527.7	1523.7	1524.8	1516.4	1510.7	1514.1	1489.3	1443.6	1388.8	1363.4
5°	1574.5	1580.7	1573.4	1540.6	1523.7	1510.7	1507.3	1509.0	1491.5	1405.8	1353.3
7.5°	1580.7	1579.6	1579.0	1561.0	1581.3	1592.0	1504.0	1491.5	1480.3	1397.3	1327.3
10°	1619.7	1623.0	1611.8	1578.5	1559.3	1526.5	1563.8	1470.1	1470.1	1382.6	1301.4
12.5°	1656.9	1659.2	1627.6	1597.6	1563.8	1544.0	1507.3	1518.1	1454.9	1375.9	1276.5
15°	1610.6	1616.3	1582.4	1564.3	1606.7	1542.3	1509.0	1502.8	1432.3	1370.2	1261.9
17.5°	1624.7	1628.7	1626.4	1590.3	1528.2	1573.9	1512.4	1480.3	1431.2	1360.1	1259.0
20°	1618.0	1621.3	1581.3	1566.6	1585.2	1509.0	1507.9	1468.4	1437.9	1349.9	1232.5
22.5°	1646.7	1651.3	1614.6	1573.9	1541.8	1551.4	1530.5	1463.9	1427.8	1331.3	1207.7
25°	1644.5	1650.1	1620.8	1579.6	1556.4	1521.5	1463.3	1439.1	1404.1	1306.4	1170.4
27.5°	1672.1	1665.9	1599.3	1576.2	1554.2	1504.5	1484.2	1421.6	1370.2	1266.4	1138.8
30°	1734.8	1724.6	1692.5	1602.7	1538.4	1519.2	1467.8	1412.0	1322.8	1229.1	1112.3
32.5°	1672.7	1658.0	1636.6	1652.9	1566.0	1488.7	1426.1	1360.1	1299.7	1185.1	1071.1
35°	1677.8	1671.0	1611.2	1604.4	1612.9	1480.8	1402.9	1317.2	1266.4	1140.0	1031.0
37.5°	1902.4	1868.0	1734.2	1608.9	1569.4	1507.3	1406.3	1333.0	1232.5	1100.5	987.0
40°	1691.3	1681.2	1666.5	1740.4	1539.0	1501.1	1365.1	1326.8	1182.3	1055.9	935.1
42.5°	1689.1	1678.3	1661.4	1612.3	1627.0	1459.9	1353.3	1281.6	1140.0	1000.0	881.5
45°	1769.8	1761.9	1669.3	1625.9	1550.8	1452.6	1333.5	1232.0	1095.9	943.0	819.4
47.5°	1961.1	1926.7	1735.3	1600.5	1520.3	1474.6	1320.6	1197.5	1041.2	877.5	755.6
50°	1697.0	1694.1	1787.3	1727.4	1479.7	1411.4	1297.4	1153.5	1001.1	818.3	691.3
52.5°	1689.6	1683.4	1686.8	1638.3	1544.0	1364.0	1269.8	1096.5	945.8	758.5	638.8
55°	1602.7	1588.0	1561.5	1567.2	1554.2	1329.6	1209.9	1061.0	900.7	709.4	589.2
57.5°	1674.4	1676.1	1578.5	1504.5	1443.6	1365.1	1163.1	1003.4	858.9	655.8	531.6
59°	2091.4	2075.6	1831.8	1541.8	1412.0	1344.8	1111.7	972.9	827.9	625.3	510.7
60°	1914.2	1930.0	1976.3	1620.8	1414.8	1301.9	1089.7	954.3	806.4	605.5	498.9
62.5°	1843.7	1834.7	1741.0	1715.0	1497.8	1273.7	1089.7	920.4	758.5	566.0	452.0
65°	1680.6	1658.0	1637.7	1613.4	1519.8	1274.8	1067.2	883.8	710.5	518.1	394.5
67.5°	1649.0	1645.6	1597.6	1517.5	1422.7	1267.5	997.2	830.7	665.4	457.1	331.3
70°	1558.7	1559.8	1518.1	1454.3	1349.9	1189.6	979.1	789.5	615.7	393.3	270.3
72.5°	1500.0	1500.0	1457.7	1393.9	1300.8	1105.0	919.9	751.1	554.7	336.3	217.8
75°	1371.3	1379.8	1356.7	1298.0	1212.8	1047.4	848.8	677.2	481.9	278.2	169.3
77.5°	1320.6	1321.7	1274.8	1203.2	1113.4	956.0	773.1	608.4	424.4	222.3	127.0
80°	1269.2	1276.0	1222.9	1143.3	1045.7	890.0	706.6	544.6	362.3	168.7	92.6
82.5°	1022.6	1022.6	991.0	972.9	890.0	762.4	602.1	473.5	296.8	122.5	67.2
85°	990.4	980.8	944.7	893.9	820.5	682.8	506.8	387.7	231.9	88.6	48.5
87.5°	729.7	744.9	727.4	705.4	659.1	549.7	420.4	300.8	178.9	64.9	36.1
90°	611.2	620.8	596.5	570.0	523.1	442.4	331.8	237.0	130.9	47.4	28.2
92.5°	518.6	524.8	510.2	486.5	435.1	364.6	269.2	175.5	97.6	35.6	23.7
95°	473.5	474.6	452.0	411.4	370.8	305.3	213.3	141.1	76.8	29.3	21.4
97.5°	402.4	413.1	391.1	360.0	320.5	260.7	174.4	112.3	62.1	25.4	19.2
100°	348.8	351.6	331.3	304.7	269.2	218.4	143.3	92.6	50.8	23.7	18.1
102.5°	298.5	305.9	287.2	255.6	223.5	178.3	120.8	80.7	43.5	22.6	18.1
105°	241.5	242.1	228.6	209.9	190.7	145.6	102.7	68.3	36.7	22.0	18.1
107.5°	205.4	209.4	201.5	182.8	163.7	127.5	89.2	57.6	32.2	21.4	18.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
110°	186.8	187.9	180.6	167.0	145.0	110.6	76.8	48.5	29.9	21.4	16.9
112.5°	174.9	174.9	165.9	151.8	127.0	97.1	66.0	42.3	28.8	20.9	16.4
115°	152.9	155.2	146.2	133.7	110.6	84.7	58.1	37.8	28.2	19.8	15.2
117.5°	135.4	134.3	128.7	116.3	96.5	73.4	52.5	35.6	27.1	18.6	14.1
120°	116.8	117.9	112.3	101.6	83.5	64.3	46.8	33.3	26.0	17.5	13.0
122.5°	103.8	103.8	99.9	88.6	71.7	56.4	41.2	31.6	24.8	16.4	11.3
125°	90.3	91.4	86.9	76.2	62.1	49.1	37.2	30.5	24.3	15.2	10.2
127.5°	78.4	79.0	74.5	64.9	53.6	43.5	35.0	29.3	23.7	13.5	9.0
130°	67.7	67.2	62.6	55.3	47.4	40.6	34.4	28.2	21.4	11.9	7.9
132.5°	57.0	56.4	53.0	48.5	42.9	39.5	33.3	27.1	19.8	10.2	6.8
135°	48.5	48.5	46.3	44.0	40.6	37.2	32.2	25.4	18.1	9.0	5.6
137.5°	43.5	43.5	42.9	41.8	38.9	35.6	30.5	24.3	16.4	7.9	4.5
140°	41.2	41.8	41.2	40.6	37.8	33.9	29.3	22.6	14.7	6.8	4.0
142.5°	42.3	41.8	41.2	40.1	36.1	32.7	27.7	20.9	13.0	5.6	3.4
145°	42.9	42.9	41.2	38.4	35.0	30.5	25.4	18.6	10.7	4.5	2.8
147.5°	41.8	41.2	38.9	35.6	31.6	27.7	22.6	15.8	9.0	3.4	2.3
150°	39.5	38.9	35.6	31.6	28.8	24.8	19.2	13.5	7.3	2.8	2.3
152.5°	35.0	34.4	31.6	27.7	24.3	20.3	16.4	10.7	5.6	2.8	1.7
155°	27.7	27.1	24.8	22.0	19.2	16.9	13.5	9.0	5.1	2.3	1.7
157.5°	20.3	20.3	19.2	17.5	15.2	14.1	10.7	7.3	3.4	1.7	1.1
160°	16.9	16.9	15.8	14.7	13.0	11.3	8.5	5.6	2.8	1.7	1.1
162.5°	14.1	14.1	13.0	11.9	10.2	8.5	6.2	4.0	2.3	1.1	1.1
165°	11.3	11.3	10.7	9.6	7.9	6.2	4.5	2.8	2.3	1.1	1.1
167.5°	8.5	8.5	7.3	6.8	5.1	4.0	2.8	2.3	1.7	1.1	1.1
170°	5.1	5.1	4.5	4.0	2.8	2.3	2.3	1.7	1.7	1.1	1.1
172.5°	1.7	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.1
175°	0.6	0.6	1.1	1.1	1.1	1.7	1.7	1.7	1.1	1.1	1.1
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°	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4	1363.4
2.5°	1342.6	1320.0	1306.4	1291.8	1285.6	1273.1	1259.0	1262.4	1257.3	1265.2
5°	1322.8	1286.7	1261.3	1225.7	1202.0	1183.4	1168.2	1146.2	1143.9	1146.7
7.5°	1287.8	1246.6	1198.7	1152.9	1137.1	1141.7	1107.8	1084.1	1062.6	1056.4
10°	1255.1	1195.8	1136.6	1126.4	1055.3	1019.8	981.4	942.4	934.0	923.8
12.5°	1236.5	1159.2	1101.0	1024.3	954.9	880.9	839.2	838.0	844.8	842.6
15°	1217.8	1120.2	1053.6	938.5	842.0	817.7	794.0	757.9	728.6	729.1
17.5°	1207.1	1089.2	975.2	849.9	789.5	722.9	631.5	604.4	600.5	601.6
20°	1176.6	1053.1	911.4	799.7	705.4	590.3	539.5	478.6	462.8	455.4
22.5°	1136.6	1004.0	839.7	738.2	588.0	493.8	415.9	382.6	365.1	357.8
25°	1103.8	941.3	778.8	643.3	508.5	402.4	334.7	309.3	296.8	294.0
27.5°	1064.3	882.1	728.6	540.1	421.0	330.1	278.2	256.2	246.6	242.7
30°	1022.6	818.9	652.4	471.8	356.7	276.5	233.1	212.2	203.7	202.0
32.5°	976.3	759.6	567.7	403.5	295.7	233.6	194.1	176.6	168.2	168.2
35°	927.2	698.7	487.6	345.4	251.1	191.9	161.4	140.5	133.2	131.5
37.5°	869.6	643.9	428.3	290.1	208.8	159.7	129.2	114.6	106.1	106.1
40°	820.5	589.7	371.9	243.8	171.6	127.0	104.4	89.2	84.1	84.1
42.5°	755.6	521.4	322.8	204.3	140.5	105.0	83.5	71.7	67.7	67.2
45°	682.8	453.7	268.6	167.6	114.6	83.5	66.6	56.4	52.5	51.4
47.5°	609.5	386.6	225.2	138.8	92.6	67.2	53.0	45.1	41.8	41.2
50°	545.2	335.2	185.1	112.3	75.6	53.6	41.2	35.6	32.2	32.2
52.5°	491.5	291.2	158.6	93.1	60.9	41.2	32.7	27.7	27.7	28.2
55°	448.1	256.8	132.1	78.4	49.7	33.3	24.3	22.6	24.3	24.3
57.5°	406.9	215.6	110.6	66.6	38.9	26.0	18.6	18.6	19.2	19.2
59°	383.8	195.3	99.3	59.8	33.9	22.0	15.2	15.2	15.2	15.2
60°	365.7	180.6	93.1	55.9	30.5	19.2	13.5	13.0	12.4	11.9
62.5°	318.9	143.3	78.4	44.6	23.1	12.4	7.9	7.3	6.2	6.8
65°	263.5	117.4	64.9	35.6	17.5	6.8	2.8	1.7	0.6	0.6
67.5°	208.2	95.9	53.6	28.2	11.3	1.7	0.0	0.0	0.0	0.0
70°	169.3	77.3	43.5	20.9	6.2	0.0	0.0	0.0	0.0	0.0
72.5°	130.4	63.2	35.0	14.7	1.7	0.0	0.0	0.0	0.0	0.0
75°	98.2	50.2	27.1	9.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	75.1	40.1	20.9	5.6	0.0	0.0	0.0	0.0	0.0	0.0
80°	55.9	31.0	15.8	3.4	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	42.9	24.3	12.4	2.3	0.0	0.0	0.0	0.0	0.0	0.0
85°	32.7	18.6	9.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	26.0	14.7	7.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0
90°	20.3	11.9	5.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	17.5	10.2	4.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
95°	15.8	9.0	3.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	14.7	8.5	3.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0
100°	14.1	7.9	2.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	14.1	7.3	2.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0
105°	14.1	7.3	2.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	14.1	6.8	2.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P979135
 CATALOG NUMBER: WPSLED15S-30W-4000K

CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
110°	13.5	5.6	2.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0
112.5°	13.0	5.1	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
115°	11.9	4.0	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	10.2	2.3	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
120°	8.5	1.7	1.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	7.3	1.1	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0
125°	6.8	1.1	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	6.2	1.1	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0
130°	5.1	1.7	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	4.5	1.7	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
135°	4.0	1.7	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
137.5°	3.4	1.7	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
140°	2.8	1.7	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0
142.5°	2.3	1.7	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0
145°	2.3	1.7	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0
147.5°	1.7	1.1	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0
150°	1.7	1.1	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0
152.5°	1.7	1.1	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
155°	1.1	1.1	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
157.5°	1.1	1.1	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
160°	1.1	1.1	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
162.5°	1.1	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
165°	1.1	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	1.1	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
170°	1.1	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	1.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	1.1	0.6	0.6	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.

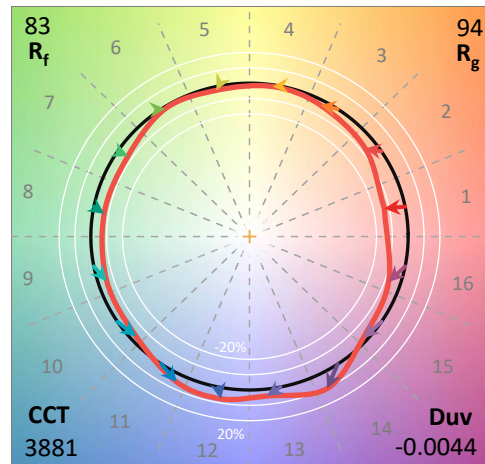
Test Information

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

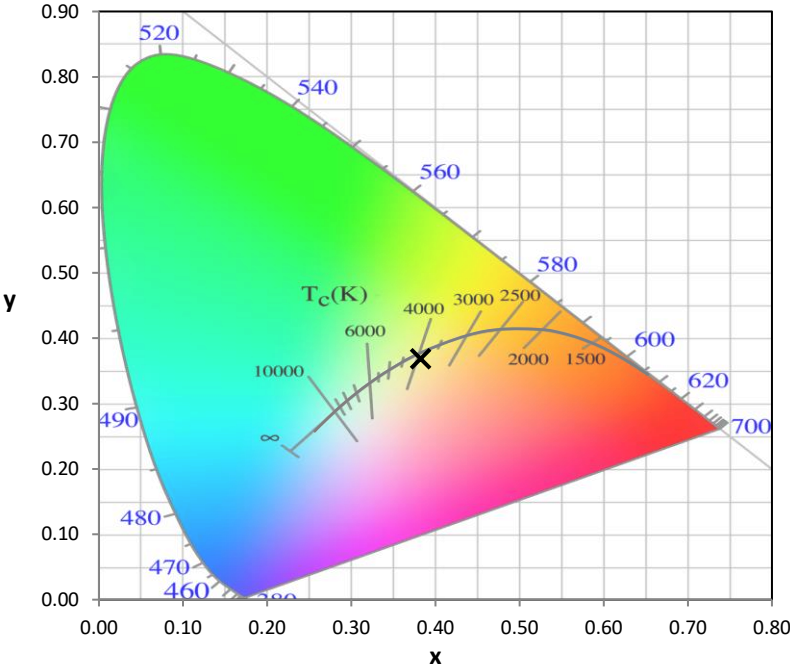
Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-168-3

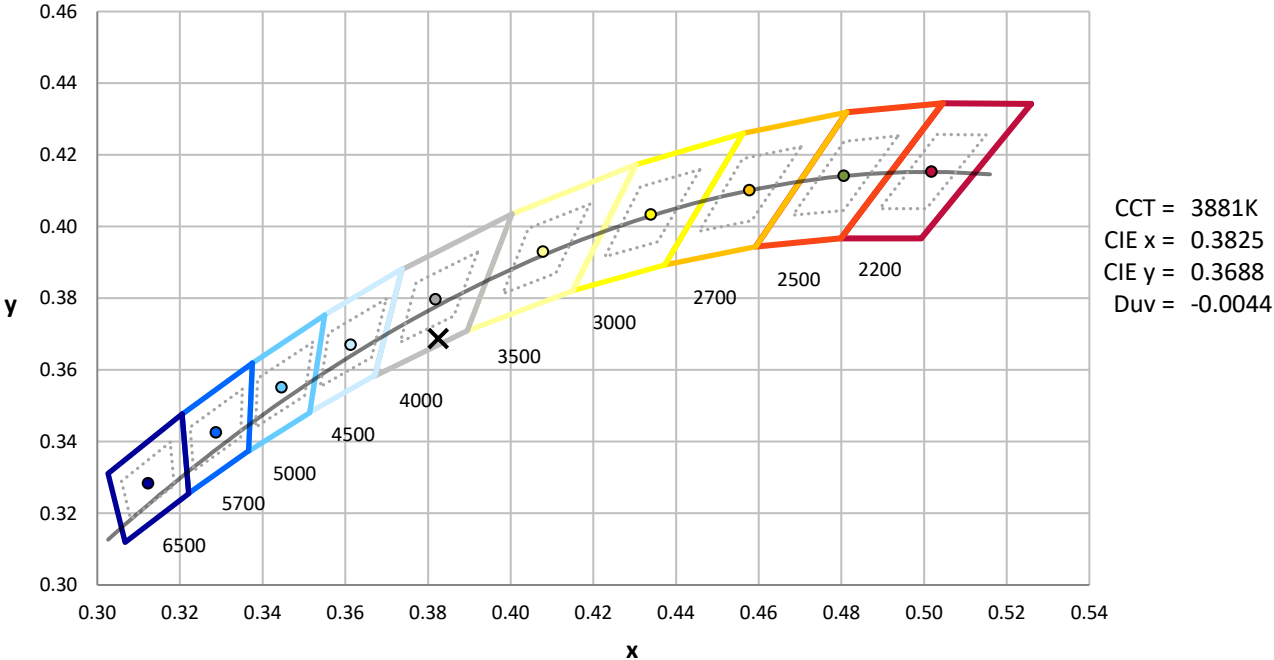
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



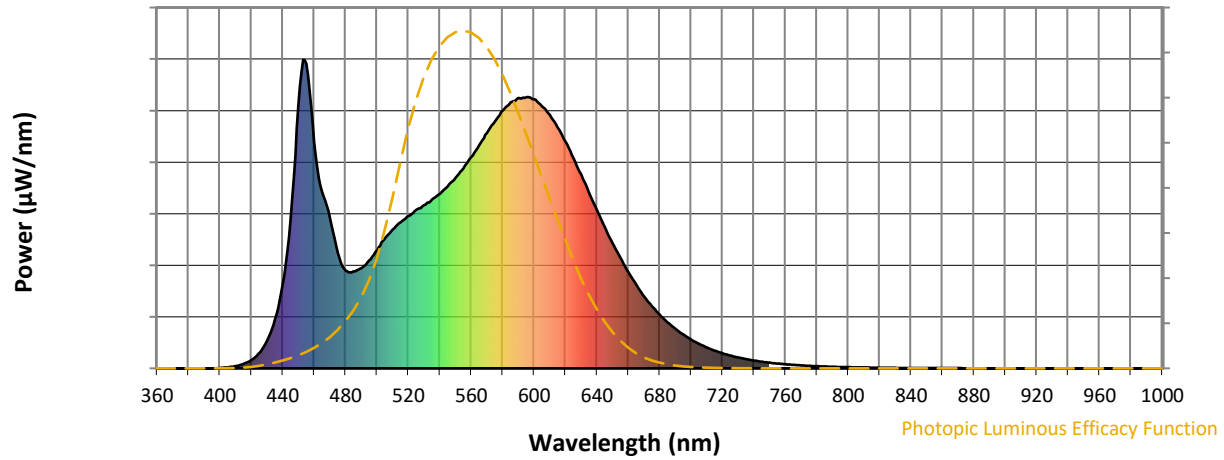
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-168-3

Photopic Flux vs. Wavelength

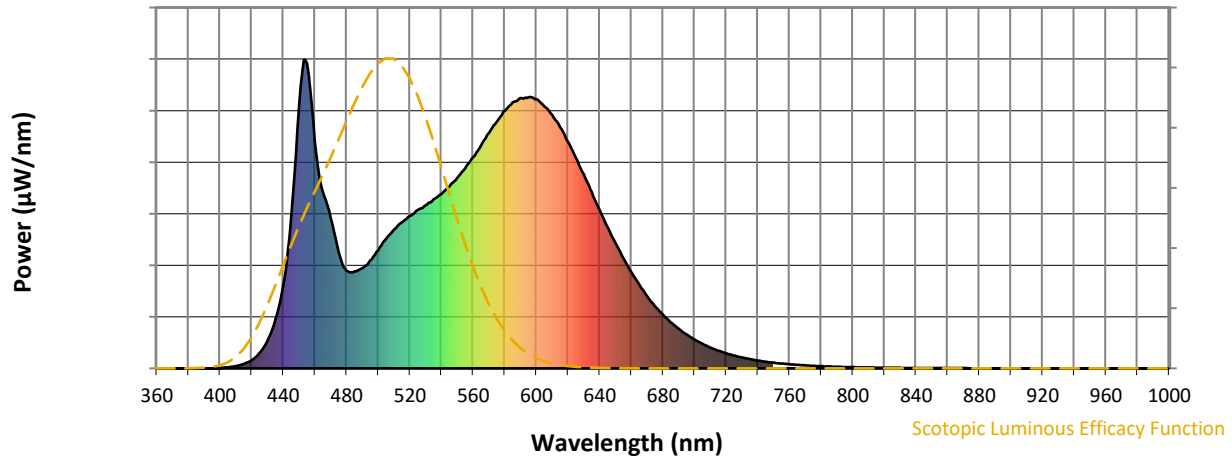


Photopic Lumens: NR

λ (nm)	Power W [^] /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	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



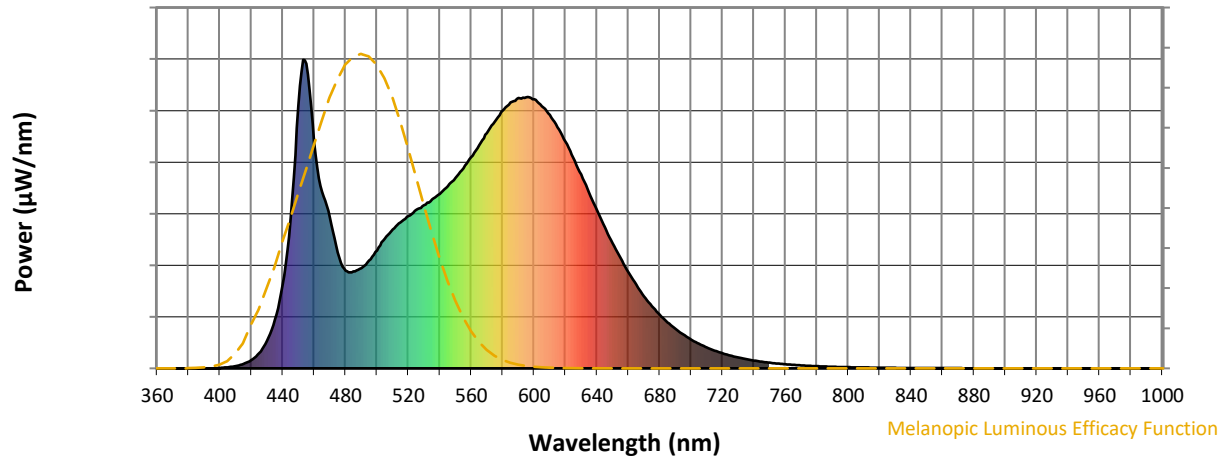
Scotopic Lumens: NR

S/P: 1.72

λ (nm)	Power W [^] /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	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



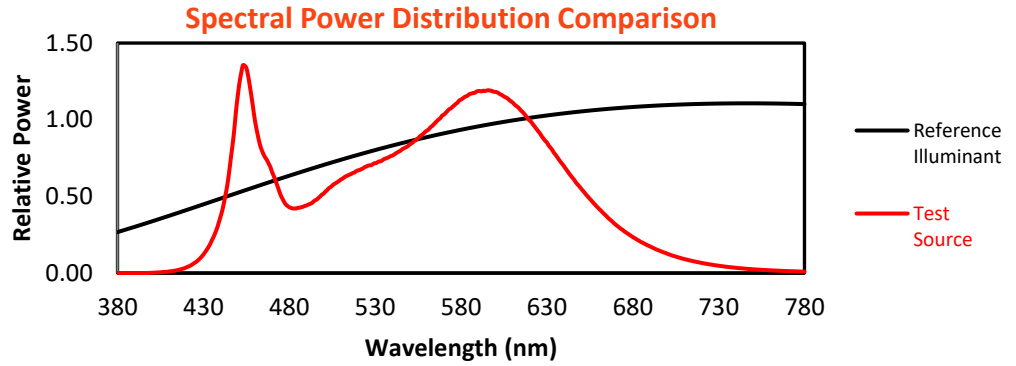
Melanopic Lumens: NR

M/P: 3.62

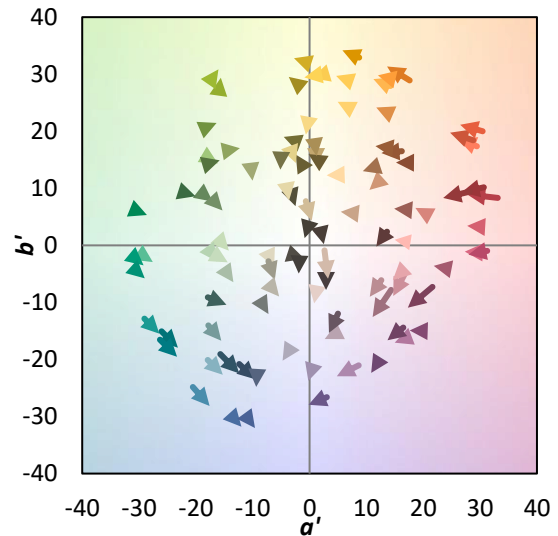
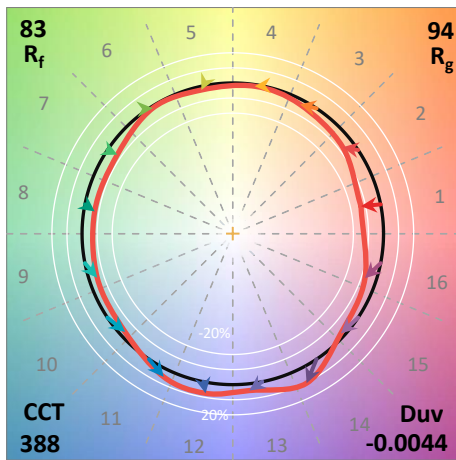
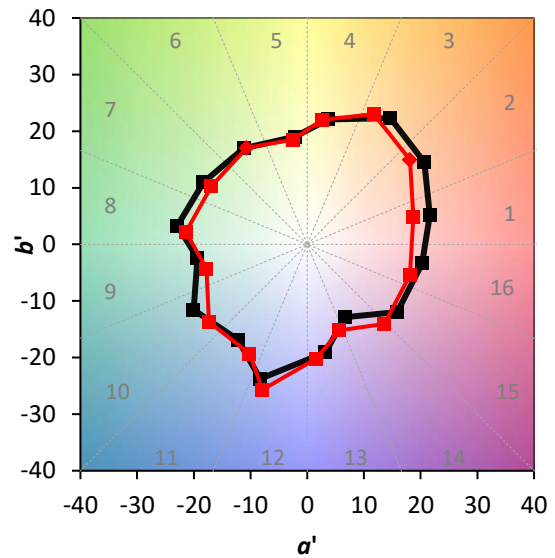
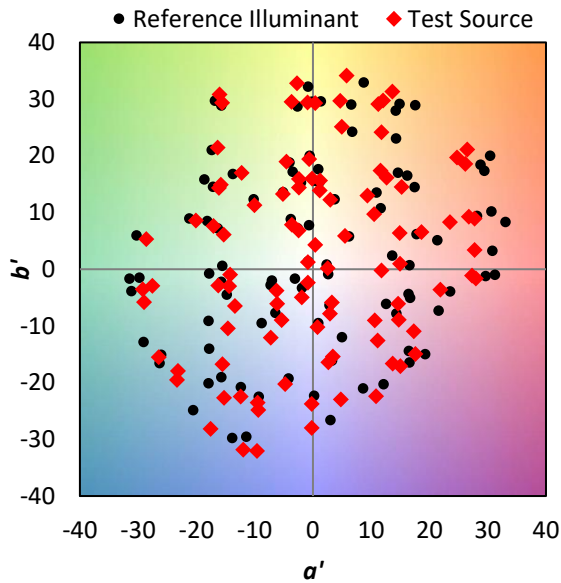
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	325	NR	620	735	NR	750	18	NR	880	0	NR
365	0	NR	495	350	NR	625	682	NR	755	16	NR	885	0	NR
370	0	NR	500	382	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 $R_a = 82.7$
 $R_9 = 4.8$

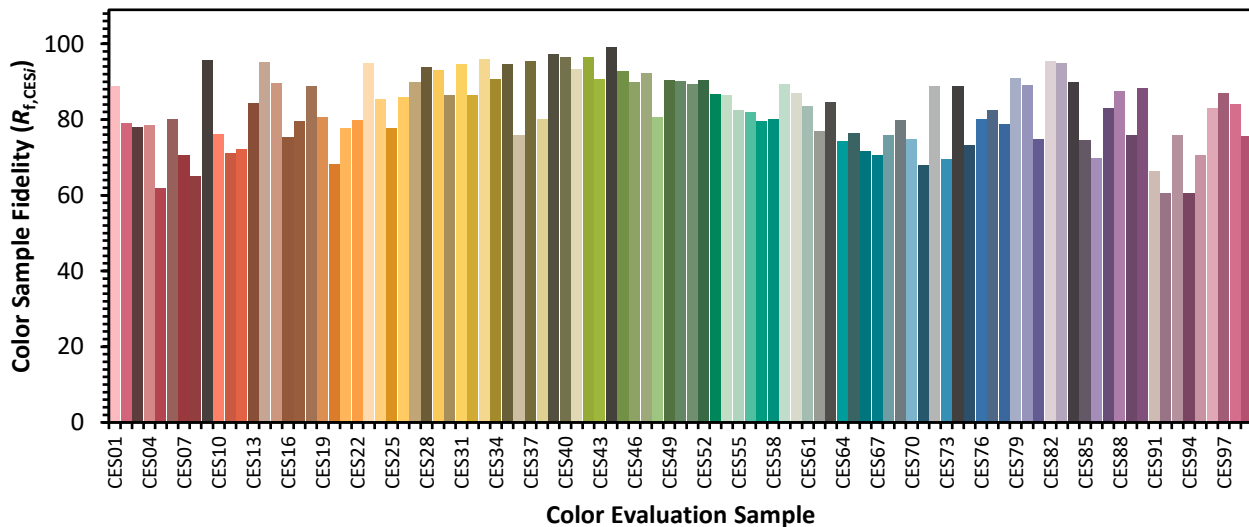


Color Vector Graphics

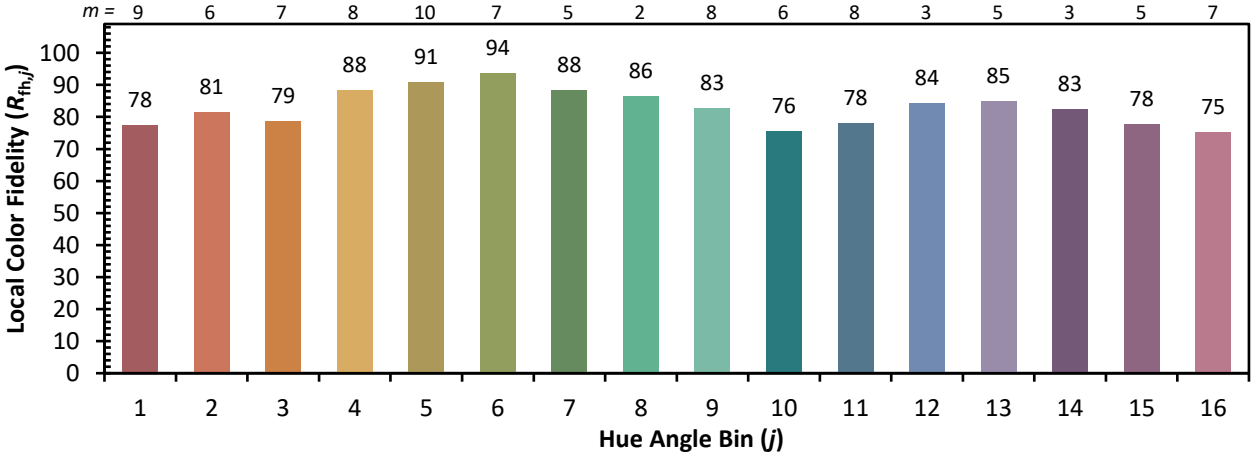
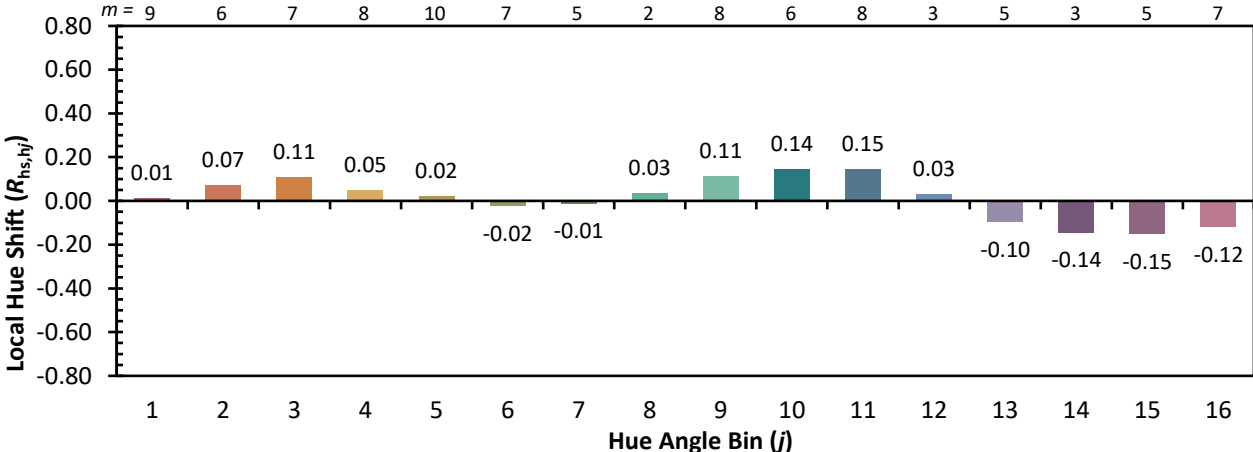
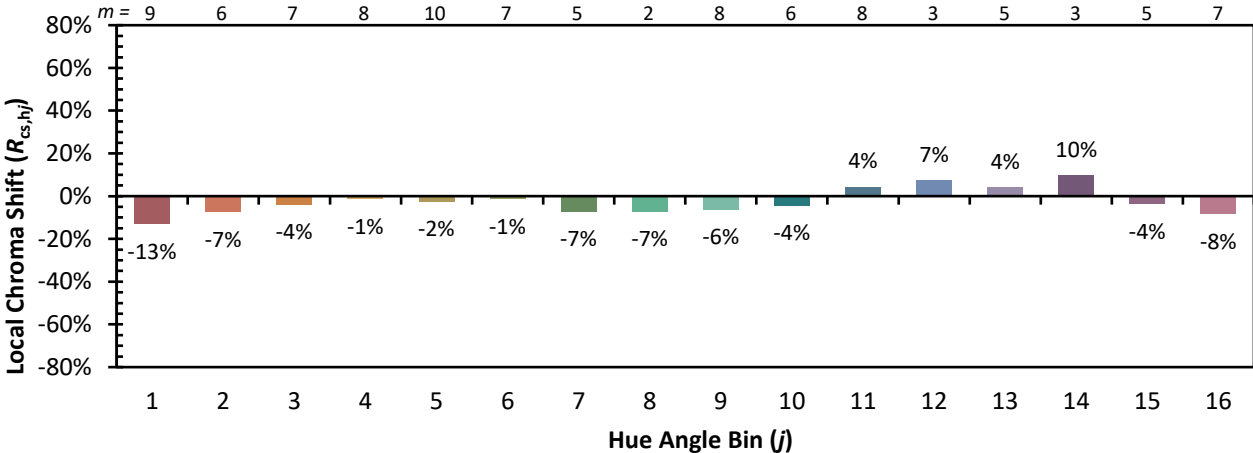


Individual Sample Fidelity Index ($R_{f,i}$)

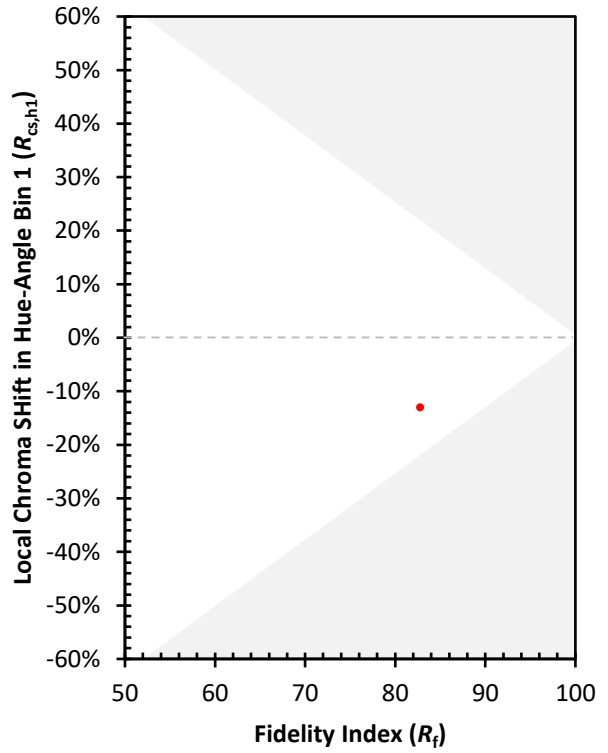
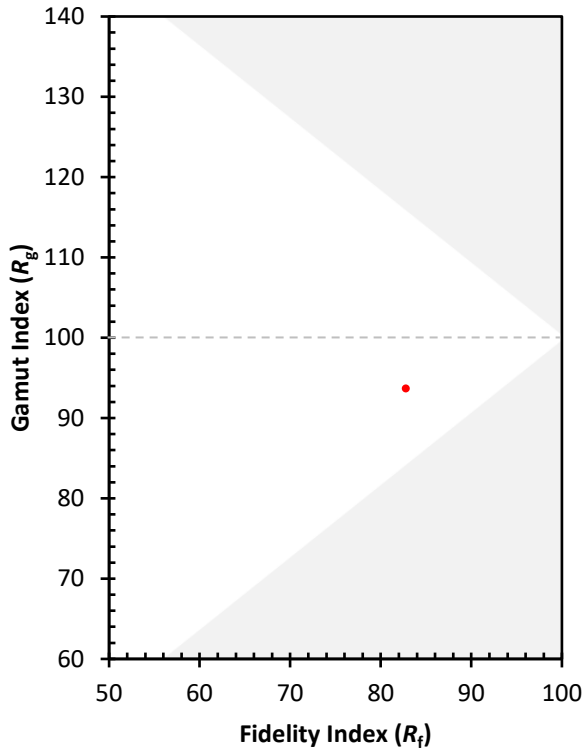
CES01 = 86	CES26 = 86	CES51 = 89	CES76 = 80
CES02 = 62	CES27 = 90	CES52 = 91	CES77 = 83
CES03 = 31	CES28 = 94	CES53 = 87	CES78 = 79
CES04 = 70	CES29 = 93	CES54 = 86	CES79 = 91
CES05 = 48	CES30 = 86	CES55 = 83	CES80 = 89
CES06 = 51	CES31 = 95	CES56 = 82	CES81 = 75
CES07 = 41	CES32 = 86	CES57 = 80	CES82 = 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)