

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: McGRAW-EDISON

Report Number: P833559

Luminaire Tested: **TTN-D2-740-U-DL-UPL3**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P833559
REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G3-2308-121-4) AND
Test Lab: INNOVATION CENTER
Issue Date: 5/15/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: TTN-D2-740-U-DL-UPL3
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
4000K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5824.6 lumens
Efficiency: N/A
Efficacy: 117.7 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B1 - U4 - G2

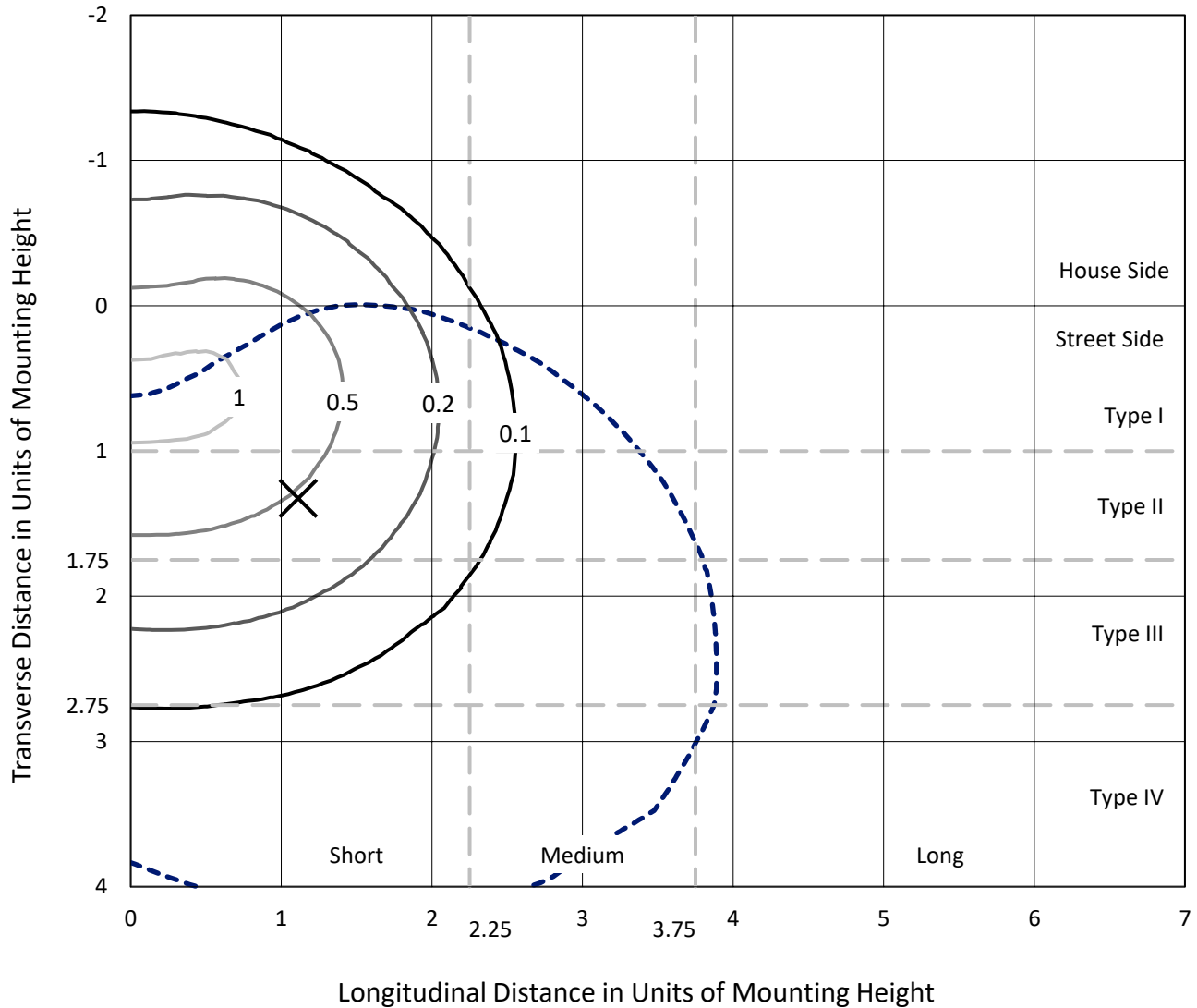
Input Watts (W): 49.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

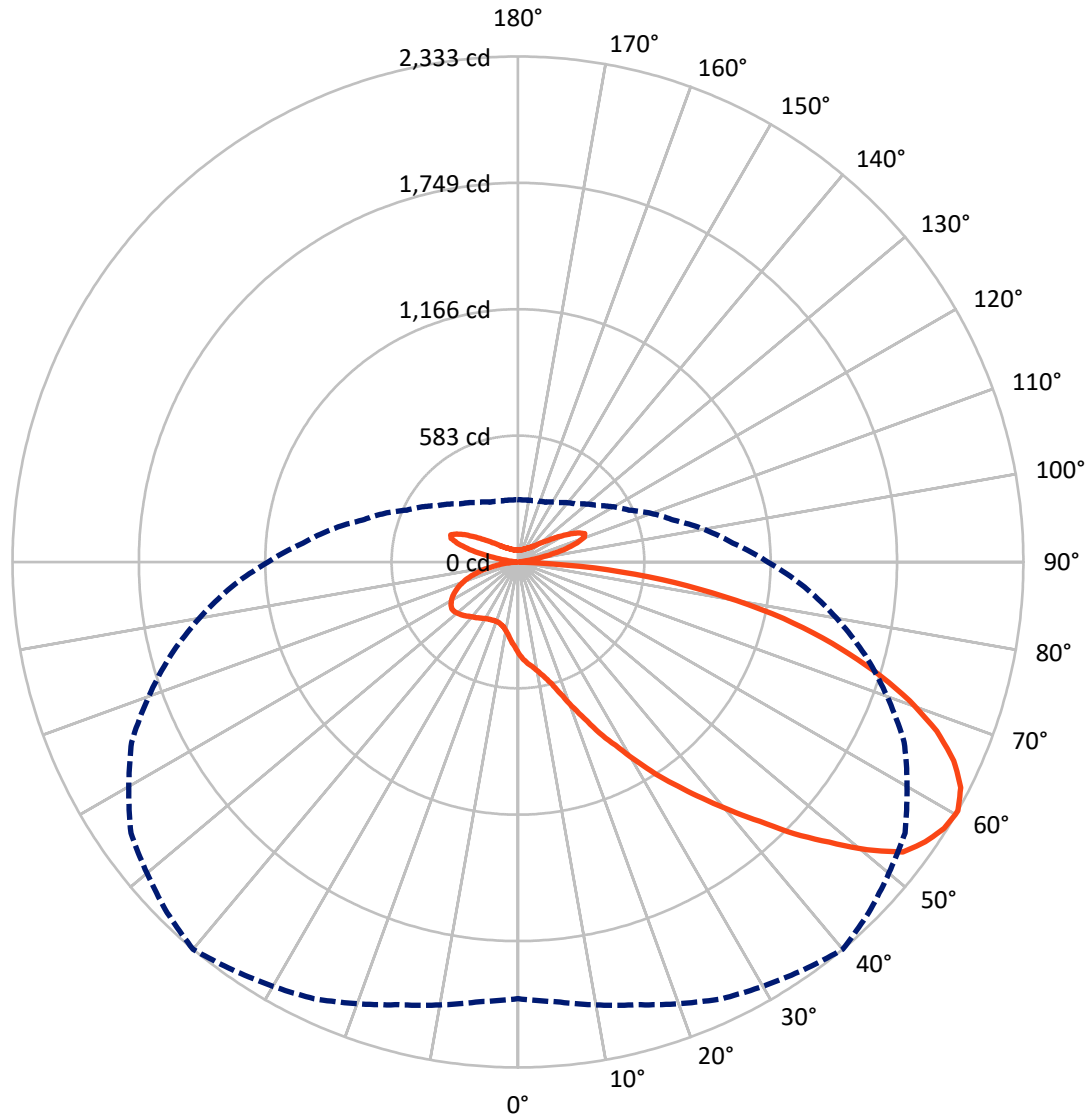
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 40-Deg Lateral - - - Horizontal Cone Through 60-Deg Vertical



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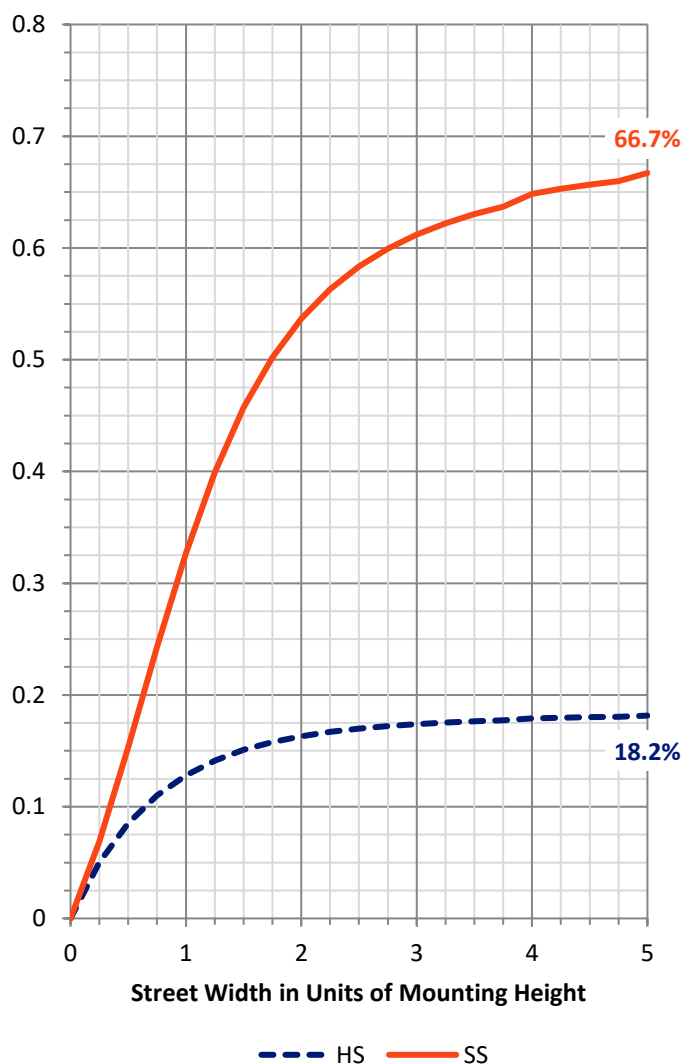
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1067.9	405.8	1473.6
	% Fixture	18.3	7.0	25.3
Street Side	Lumens	3945.2	405.8	4351.0
	% Fixture	67.7	7.0	74.7
Total	Lumens	5013.1	811.5	5824.6
	% Fixture	86.1	13.9	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.8	0.7
10°-20°	127.0	2.2
20°-30°	268.4	4.6
30°-40°	490.5	8.4
40°-50°	797.1	13.7
50°-60°	1107.9	19.0
60°-70°	1148.5	19.7
70°-80°	823.0	14.1
80°-90°	210.9	3.6
90°-100°	18.1	0.3
100°-110°	184.1	3.2
110°-120°	269.1	4.6
120°-130°	156.2	2.7
130°-140°	82.7	1.4
140°-150°	49.1	0.8
150°-160°	30.3	0.5
160°-170°	16.5	0.3
170°-180°	5.4	0.1
0°-90°	5013.1	86.1
0°-180°	5824.6	100.0

Coefficient of Utilization

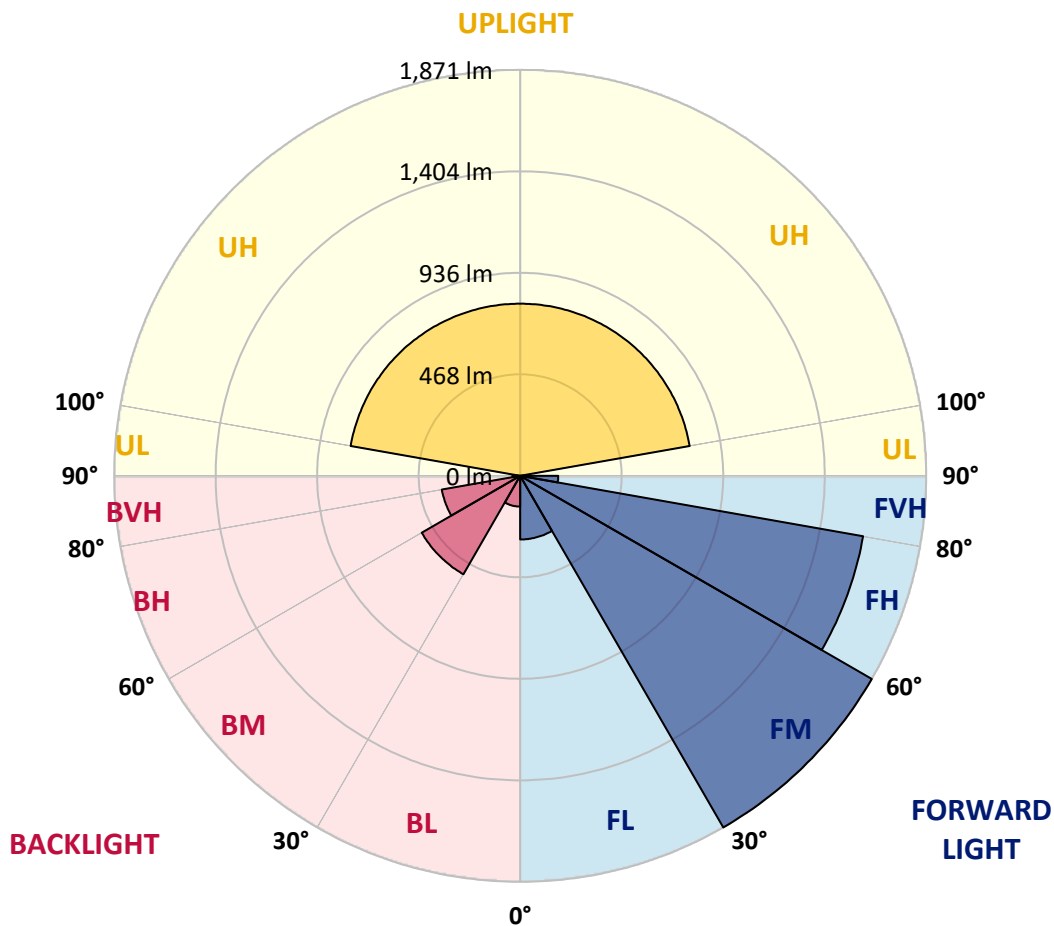


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	293.3	5.0			
FM (30°-60°)	1871.5	32.1			
FH (60°-80°)	1605.1	27.6			G1/1800
FVH (80°-90°)	175.3	3.0			G2/225
BL (0°-30°)	141.9	2.4	B1/500		
BM (30°-60°)	524.0	9.0	B1/1000		
BH (60°-80°)	366.4	6.3	B1/500		G1/500
BVH (80°-90°)	35.6	0.6			G1/100
UL (90°-100°)	18.1	0.3		U2/50	
UH (100°-180°)	793.4	13.6		U4/1000	

BUG Rating: B1-U4-G2
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
0°	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1
2.5°	452.6	452.6	452.6	452.6	448.2	448.2	443.9	439.5	435.2	430.8	422.1
5°	491.7	491.7	487.4	483.0	474.3	470.0	465.6	456.9	448.2	439.5	426.5
7.5°	509.2	509.2	509.2	504.8	491.7	487.4	478.7	465.6	452.6	439.5	422.1
10°	539.6	539.6	535.3	530.9	517.9	513.5	504.8	487.4	465.6	443.9	422.1
12.5°	578.8	574.4	570.1	565.7	552.7	544.0	530.9	513.5	487.4	461.3	435.2
15°	626.7	618.0	618.0	609.2	596.2	583.1	574.4	548.3	522.2	487.4	452.6
17.5°	678.9	674.5	670.2	661.5	648.4	639.7	626.7	596.2	561.4	517.9	478.7
20°	744.2	735.4	739.8	726.7	713.7	709.3	687.6	652.8	609.2	561.4	513.5
22.5°	822.5	813.8	813.8	800.7	792.0	783.3	761.6	722.4	665.8	613.6	552.7
25°	909.5	900.8	900.8	892.1	883.4	874.7	848.6	805.1	739.8	674.5	604.9
27.5°	1005.3	996.6	996.6	992.2	970.4	957.4	935.6	887.8	822.5	739.8	657.1
30°	1105.3	1096.6	1105.3	1096.6	1083.6	1057.5	1031.4	979.1	905.2	813.8	713.7
32.5°	1183.7	1183.7	1188.0	1196.7	1188.0	1166.3	1135.8	1092.3	992.2	879.1	765.9
35°	1275.1	1275.1	1283.8	1296.8	1292.5	1270.7	1240.3	1192.4	1087.9	953.0	822.5
37.5°	1375.2	1375.2	1383.9	1405.6	1396.9	1383.9	1362.1	1301.2	1183.7	1027.0	883.4
40°	1484.0	1479.6	1488.3	1518.8	1523.1	1505.7	1479.6	1418.7	1283.8	1122.8	948.7
42.5°	1592.7	1588.4	1605.8	1636.3	1640.6	1636.3	1610.2	1540.5	1388.2	1218.5	1014.0
45°	1701.5	1701.5	1727.6	1775.5	1797.3	1788.6	1766.8	1679.8	1518.8	1318.6	1101.0
47.5°	1814.7	1814.7	1849.5	1910.4	1936.5	1932.2	1923.5	1819.0	1645.0	1423.0	1175.0
50°	1901.7	1901.7	1958.3	2027.9	2071.4	2088.8	2045.3	1949.6	1753.8	1514.4	1235.9
52.5°	1988.8	1988.8	2045.3	2154.1	2197.6	2223.8	2167.2	2067.1	1875.6	1597.1	1292.5
55°	2032.3	2041.0	2119.3	2223.8	2293.4	2280.3	2302.1	2167.2	1953.9	1658.0	1327.3
57.5°	2036.6	2049.7	2136.7	2245.5	2323.8	2319.5	2323.8	2202.0	1984.4	1671.1	1331.6
60°	2014.9	2036.6	2115.0	2223.8	2297.7	2332.5	2289.0	2180.2	1967.0	1658.0	1327.3
62.5°	1962.6	2006.2	2088.8	2171.5	2280.3	2293.4	2258.6	2167.2	1919.1	1645.0	1305.5
65°	1845.1	1893.0	2010.5	2106.3	2193.3	2210.7	2171.5	2093.2	1871.3	1584.0	1235.9
67.5°	1727.6	1758.1	1858.2	2006.2	2067.1	2084.5	2071.4	1980.1	1788.6	1462.2	1153.2
70°	1592.7	1631.9	1710.2	1862.6	1923.5	1919.1	1958.3	1853.9	1662.4	1357.7	1066.2
72.5°	1410.0	1466.5	1544.9	1671.1	1745.1	1718.9	1779.9	1692.8	1497.0	1227.2	948.7
75°	1196.7	1244.6	1344.7	1444.8	1527.5	1497.0	1544.9	1484.0	1305.5	1070.5	813.8
77.5°	957.4	1014.0	1105.3	1196.7	1253.3	1253.3	1275.1	1222.8	1083.6	879.1	665.8
80°	709.3	761.6	844.2	909.5	961.7	966.1	987.8	961.7	835.5	683.2	509.2
82.5°	470.0	496.1	570.1	622.3	674.5	670.2	705.0	687.6	583.1	470.0	339.4
85°	200.2	217.6	278.5	322.0	369.9	352.5	400.4	396.0	313.3	226.3	152.3
87.5°	8.7	13.1	13.1	8.7	13.1	4.4	13.1	17.4	13.1	8.7	8.7
90°	6.9	6.9	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.9
92.5°	6.9	6.9	6.9	9.7	11.1	10.4	9.7	11.1	8.3	8.3	6.9
95°	8.3	8.3	9.7	12.5	15.3	16.0	16.7	16.7	9.7	9.7	8.3
97.5°	11.1	12.5	12.5	15.3	25.0	35.4	45.8	27.8	13.9	13.9	12.5
100°	18.0	19.4	19.4	34.7	73.6	86.1	98.6	70.8	36.1	26.4	19.4
102.5°	58.3	61.1	75.0	112.5	166.6	159.0	151.3	127.7	120.8	83.3	66.6
105°	148.6	147.2	158.3	187.4	233.3	231.2	229.1	211.0	191.6	165.2	152.7
107.5°	195.8	195.8	205.5	230.5	265.2	287.4	309.6	313.8	248.5	218.0	204.1
110°	220.8	220.8	229.1	249.9	295.7	327.0	358.2	355.4	306.8	269.4	251.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
112.5°	226.3	227.7	238.8	270.7	320.7	334.6	348.5	336.0	316.6	299.9	286.0
115°	234.6	234.6	247.1	277.7	305.5	311.0	316.6	302.7	287.4	276.3	270.7
117.5°	231.9	236.0	238.8	255.5	273.5	277.6	281.8	274.9	254.1	245.8	243.0
120°	215.2	215.2	218.0	226.3	236.0	238.1	240.2	237.4	223.5	216.6	215.2
122.5°	191.6	193.0	191.6	195.8	202.7	204.8	206.9	204.1	193.0	190.2	190.2
125°	168.0	168.0	166.6	169.4	173.6	172.9	172.2	173.6	168.0	166.6	166.6
127.5°	151.3	149.9	147.2	148.6	149.9	149.9	149.9	151.3	145.8	147.2	148.6
130°	134.7	134.7	131.9	131.9	131.9	130.5	129.1	131.9	129.1	130.5	131.9
132.5°	119.4	119.4	115.2	113.9	113.9	113.9	113.9	115.2	113.9	116.6	119.4
135°	106.9	106.9	102.7	104.1	104.1	103.4	102.7	104.1	102.7	105.5	106.9
137.5°	97.2	97.2	94.4	94.4	94.4	93.7	93.0	94.4	94.4	95.8	98.6
140°	88.9	88.9	87.5	87.5	86.1	86.8	87.5	87.5	87.5	88.9	90.2
142.5°	84.7	83.3	81.9	80.5	81.9	81.9	81.9	81.9	80.5	81.9	84.7
145°	77.8	77.8	76.4	76.4	76.4	77.1	77.8	76.4	76.4	77.8	77.8
147.5°	73.6	73.6	72.2	73.6	73.6	73.6	73.6	73.6	72.2	73.6	73.6
150°	72.2	70.8	69.4	70.8	70.8	70.1	69.4	69.4	69.4	69.4	70.8
152.5°	68.0	68.0	66.6	68.0	66.6	66.6	66.6	66.6	66.6	66.6	68.0
155°	65.3	65.3	63.9	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3
157.5°	62.5	63.9	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	63.9
160°	61.1	61.1	61.1	61.1	59.7	59.7	59.7	59.7	61.1	61.1	61.1
162.5°	59.7	59.7	59.7	59.7	58.3	58.3	58.3	58.3	58.3	59.7	59.7
165°	59.7	58.3	58.3	58.3	56.9	56.9	56.9	56.9	56.9	58.3	59.7
167.5°	56.9	56.9	56.9	56.9	56.9	56.2	55.5	55.5	56.9	56.9	56.9
170°	56.9	56.9	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5
172.5°	56.9	56.9	56.9	56.9	55.5	55.5	55.5	55.5	55.5	55.5	56.9
175°	56.9	56.9	56.9	56.9	55.5	55.5	55.5	55.5	56.9	56.9	56.9
177.5°	56.9	56.9	56.9	56.9	55.5	56.2	56.9	56.9	56.9	56.9	56.9
180°	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1	422.1
2.5°	422.1	417.8	409.1	404.7	400.4	391.7	391.7	387.3	387.3	387.3	383.0
5°	422.1	413.4	404.7	391.7	383.0	374.3	365.5	356.8	352.5	352.5	348.1
7.5°	413.4	404.7	391.7	378.6	365.5	348.1	339.4	322.0	317.7	313.3	313.3
10°	413.4	404.7	383.0	365.5	348.1	330.7	317.7	300.3	287.2	282.9	282.9
12.5°	417.8	404.7	383.0	361.2	339.4	317.7	300.3	282.9	269.8	261.1	261.1
15°	435.2	417.8	391.7	361.2	335.1	309.0	291.6	269.8	256.8	248.1	248.1
17.5°	456.9	439.5	400.4	365.5	335.1	304.6	282.9	261.1	248.1	239.3	235.0
20°	487.4	461.3	417.8	369.9	335.1	304.6	278.5	256.8	239.3	230.6	230.6
22.5°	522.2	491.7	435.2	378.6	339.4	304.6	278.5	252.4	235.0	226.3	226.3
25°	565.7	526.6	461.3	396.0	348.1	309.0	278.5	252.4	235.0	226.3	226.3
27.5°	613.6	570.1	487.4	413.4	356.8	313.3	278.5	252.4	235.0	226.3	226.3
30°	657.1	609.2	513.5	430.8	369.9	317.7	282.9	256.8	239.3	230.6	226.3
32.5°	705.0	644.1	539.6	448.2	378.6	326.4	287.2	261.1	239.3	230.6	230.6
35°	752.9	687.6	565.7	470.0	391.7	335.1	291.6	265.5	243.7	235.0	235.0
37.5°	805.1	735.4	596.2	487.4	404.7	343.8	300.3	269.8	248.1	239.3	239.3
40°	866.0	783.3	626.7	509.2	417.8	352.5	304.6	278.5	256.8	248.1	248.1
42.5°	922.6	826.8	657.1	526.6	430.8	361.2	313.3	282.9	265.5	256.8	256.8
45°	979.1	879.1	687.6	548.3	443.9	374.3	322.0	295.9	274.2	265.5	265.5
47.5°	1044.4	926.9	722.4	565.7	456.9	383.0	330.7	304.6	282.9	278.5	274.2
50°	1096.6	961.7	744.2	583.1	465.6	391.7	339.4	309.0	291.6	282.9	282.9
52.5°	1144.5	996.6	761.6	591.8	470.0	396.0	348.1	317.7	300.3	291.6	291.6
55°	1170.6	1009.6	774.6	591.8	474.3	400.4	348.1	317.7	300.3	295.9	291.6
57.5°	1170.6	1009.6	765.9	583.1	465.6	391.7	343.8	313.3	300.3	291.6	291.6
60°	1153.2	996.6	744.2	565.7	452.6	378.6	335.1	304.6	291.6	287.2	287.2
62.5°	1127.1	974.8	726.7	544.0	435.2	361.2	322.0	291.6	282.9	282.9	278.5
65°	1057.5	909.5	687.6	513.5	409.1	339.4	304.6	278.5	269.8	265.5	261.1
67.5°	983.5	848.6	626.7	478.7	374.3	317.7	282.9	261.1	248.1	248.1	243.7
70°	909.5	783.3	570.1	430.8	335.1	291.6	256.8	235.0	226.3	226.3	226.3
72.5°	809.4	700.6	504.8	378.6	295.9	256.8	230.6	208.9	204.5	204.5	200.2
75°	691.9	596.2	426.5	322.0	248.1	217.6	195.8	174.1	174.1	174.1	174.1
77.5°	565.7	483.0	339.4	256.8	195.8	174.1	161.0	143.6	143.6	143.6	143.6
80°	426.5	356.8	248.1	187.1	143.6	126.2	117.5	108.8	113.1	113.1	108.8
82.5°	278.5	235.0	156.7	117.5	91.4	82.7	82.7	74.0	78.3	78.3	78.3
85°	121.8	104.4	65.3	52.2	43.5	43.5	43.5	39.2	43.5	43.5	43.5
87.5°	8.7	8.7	8.7	8.7	8.7	8.7	8.7	0.0	4.4	8.7	4.4
90°	6.9	6.9	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.9	6.9
92.5°	6.9	6.9	8.3	8.3	11.1	9.7	11.1	9.7	6.9	6.9	6.9
95°	8.3	8.3	9.7	9.7	16.7	16.7	15.3	12.5	9.7	8.3	8.3
97.5°	11.1	12.5	13.9	13.9	27.8	45.8	25.0	15.3	12.5	12.5	11.1
100°	19.4	19.4	26.4	36.1	70.8	98.6	73.6	34.7	19.4	19.4	18.0
102.5°	63.9	66.6	83.3	120.8	127.7	151.3	166.6	112.5	75.0	61.1	58.3
105°	152.7	152.7	165.2	191.6	211.0	229.1	233.3	187.4	158.3	147.2	148.6
107.5°	202.7	204.1	218.0	248.5	313.8	309.6	265.2	230.5	205.5	195.8	195.8
110°	248.5	251.3	269.4	306.8	355.4	358.2	295.7	249.9	229.1	220.8	220.8



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 CATALOG NUMBER: TTN-D2-740-U-DL-UPL3

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	283.2	286.0	299.9	316.6	336.0	348.5	320.7	270.7	238.8	227.7	226.3
115°	273.5	270.7	276.3	287.4	302.7	316.6	305.5	277.7	247.1	234.6	234.6
117.5°	238.8	243.0	245.8	254.1	274.9	281.8	273.5	255.5	238.8	236.0	231.9
120°	212.4	215.2	216.6	223.5	237.4	240.2	236.0	226.3	218.0	215.2	215.2
122.5°	187.4	190.2	190.2	193.0	204.1	206.9	202.7	195.8	191.6	193.0	191.6
125°	165.2	166.6	166.6	168.0	173.6	172.2	173.6	169.4	166.6	168.0	168.0
127.5°	147.2	148.6	147.2	145.8	151.3	149.9	149.9	148.6	147.2	149.9	151.3
130°	133.3	131.9	130.5	129.1	131.9	129.1	131.9	131.9	131.9	134.7	134.7
132.5°	119.4	119.4	116.6	113.9	115.2	113.9	113.9	113.9	115.2	119.4	119.4
135°	106.9	106.9	105.5	102.7	104.1	102.7	104.1	104.1	102.7	106.9	106.9
137.5°	100.0	98.6	95.8	94.4	94.4	93.0	94.4	94.4	94.4	97.2	97.2
140°	90.2	90.2	88.9	87.5	87.5	87.5	86.1	87.5	87.5	88.9	88.9
142.5°	84.7	84.7	81.9	80.5	81.9	81.9	81.9	80.5	81.9	83.3	84.7
145°	79.1	77.8	77.8	76.4	76.4	77.8	76.4	76.4	76.4	77.8	77.8
147.5°	75.0	73.6	73.6	72.2	73.6	73.6	73.6	73.6	72.2	73.6	73.6
150°	70.8	70.8	69.4	69.4	69.4	69.4	70.8	70.8	69.4	70.8	72.2
152.5°	69.4	68.0	66.6	66.6	66.6	66.6	66.6	68.0	66.6	68.0	68.0
155°	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	63.9	65.3	65.3
157.5°	63.9	63.9	62.5	62.5	62.5	62.5	62.5	62.5	62.5	63.9	62.5
160°	62.5	61.1	61.1	61.1	59.7	59.7	59.7	61.1	61.1	61.1	61.1
162.5°	61.1	59.7	59.7	58.3	58.3	58.3	58.3	59.7	59.7	59.7	59.7
165°	58.3	59.7	58.3	56.9	56.9	56.9	56.9	58.3	58.3	58.3	59.7
167.5°	58.3	56.9	56.9	56.9	55.5	55.5	56.9	56.9	56.9	56.9	56.9
170°	56.9	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	56.9	56.9
172.5°	56.9	56.9	55.5	55.5	55.5	55.5	55.5	56.9	56.9	56.9	56.9
175°	55.5	56.9	56.9	56.9	55.5	55.5	55.5	56.9	56.9	56.9	56.9
177.5°	56.9	56.9	56.9	56.9	56.9	56.9	55.5	56.9	56.9	56.9	56.9
180°	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-2

Test Date: 11/20/2024

Luminaire Tested: TTN-D0-740-U-WQ

Data in this report applies to TT and TTN families of products

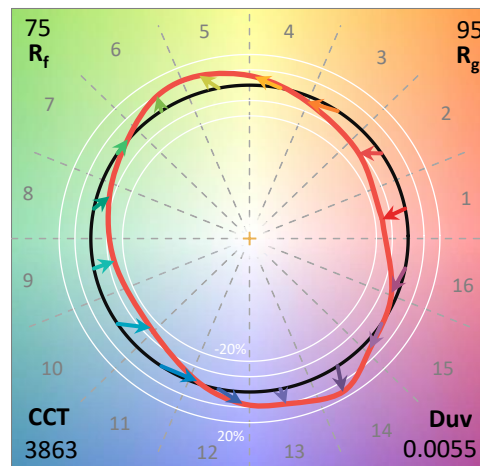
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-740-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 4000K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 3863
 CIE u': 0.2247
 CIE v': 0.5111
 Duv: 0.0055
 CIE x: 0.3911
 CIE y: 0.3954
 CIE z: 0.2136
 Peak Wavelength (nm): 448
 Dominant Wavelength (nm): 577
 Purity: 36.03443
 Rf: 74.7
 Rg: 95.4

CRI (Ra):	71.9		
R1:	69.4	R9:	-23.5
R2:	76.9	R10:	45.4
R3:	83.3	R11:	68.7
R4:	72.7	R12:	38.7
R5:	68.4	R13:	70.0
R6:	67.5	R14:	90.3
R7:	82.0	R15:	62.1
R8:	55.3		



Test Conditions

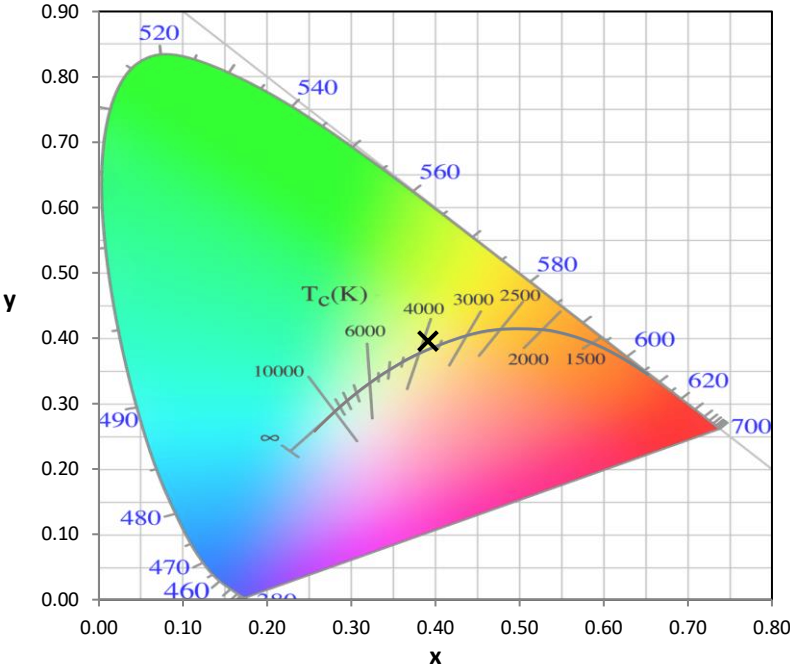
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-2

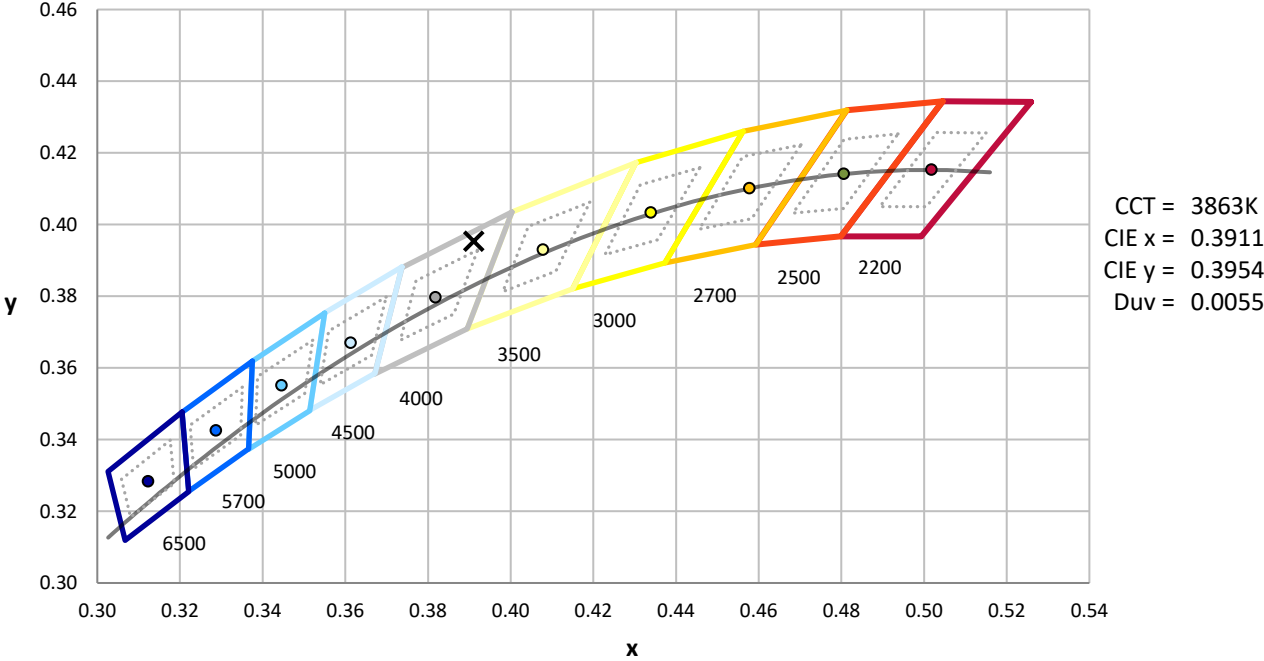
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

REPORT NUMBER: SP1-2411-284-2

CIE 1931 Chromaticity Diagram



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

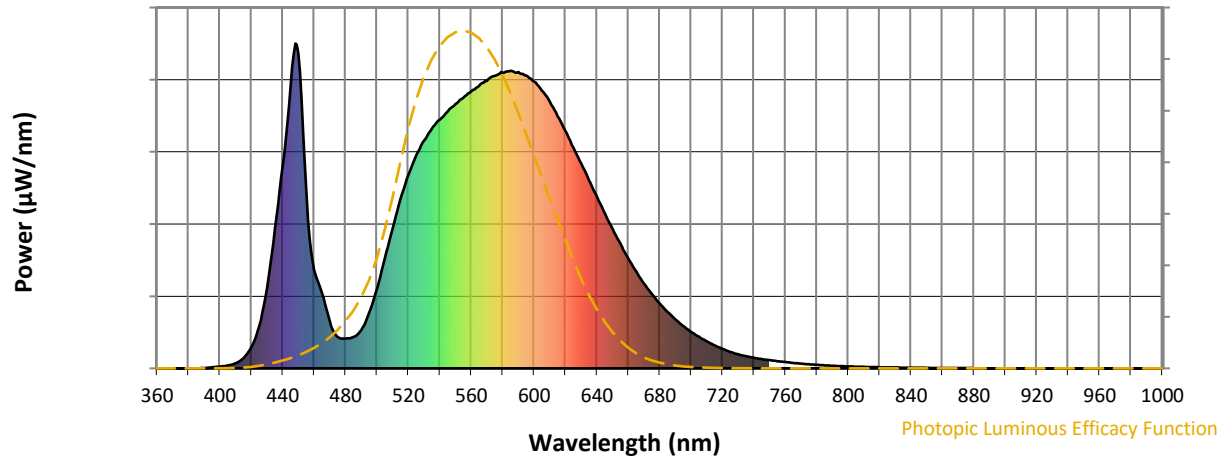


CCT = 3863K
 CIE x = 0.3911
 CIE y = 0.3954
 Duv = 0.0055

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2411-284-2

Photopic Flux vs. Wavelength

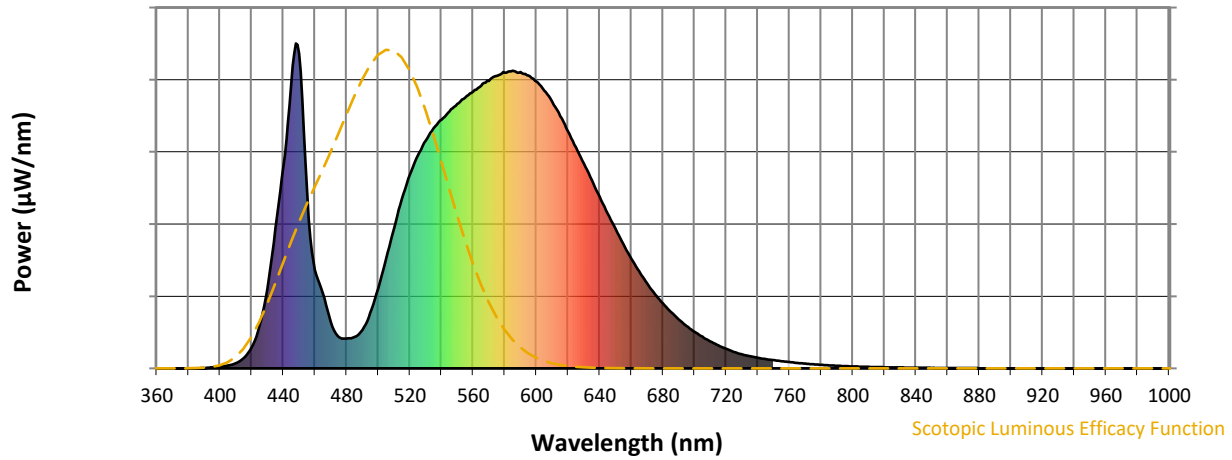


Photopic Lumens: NR

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Scotopic Flux vs. Wavelength



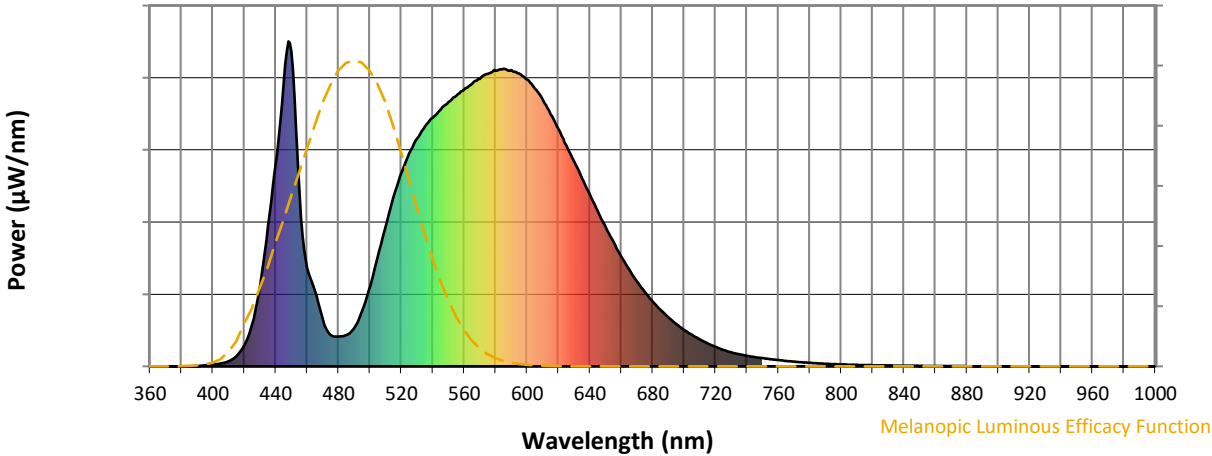
Scotopic Lumens: NR

S/P: 1.45

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Melanopic Flux vs. Wavelength



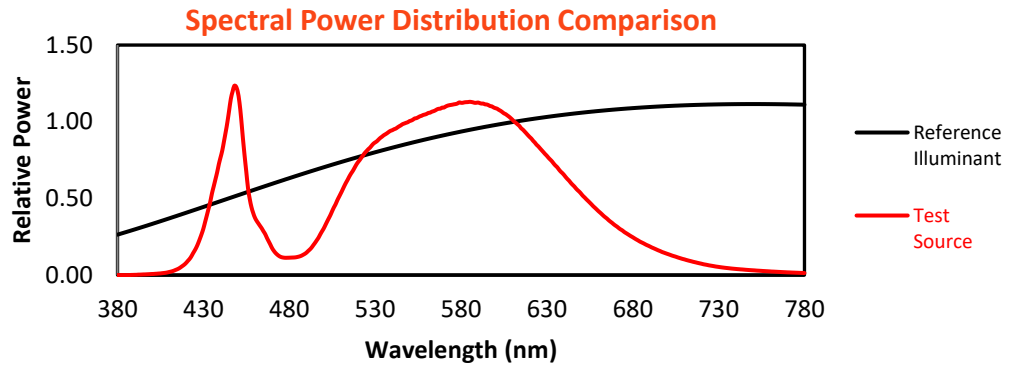
Melanopic Lumens: NR

M/P: 2.72

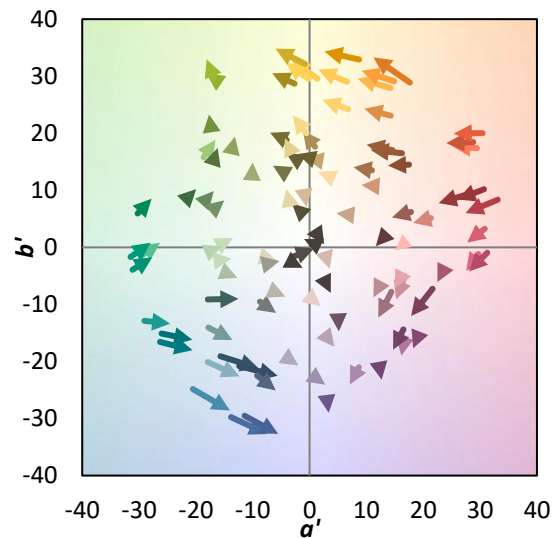
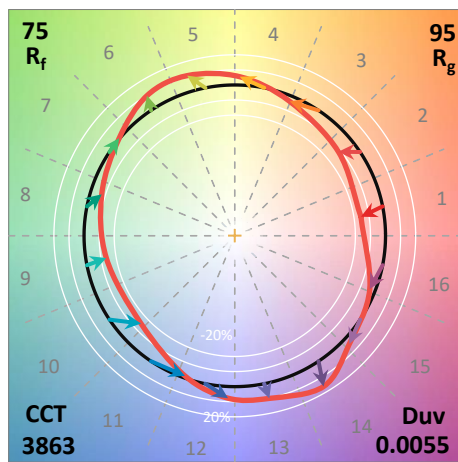
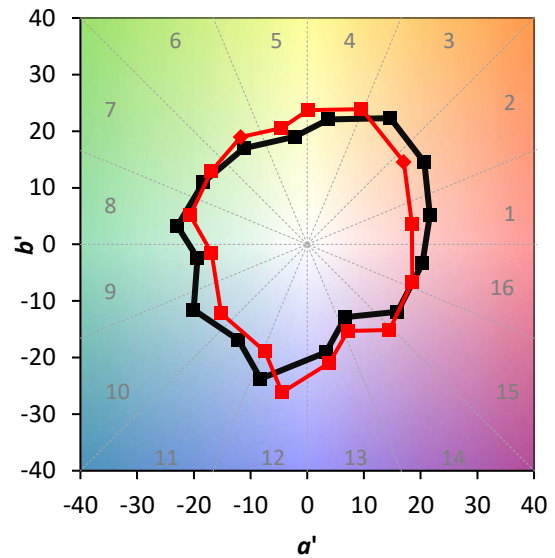
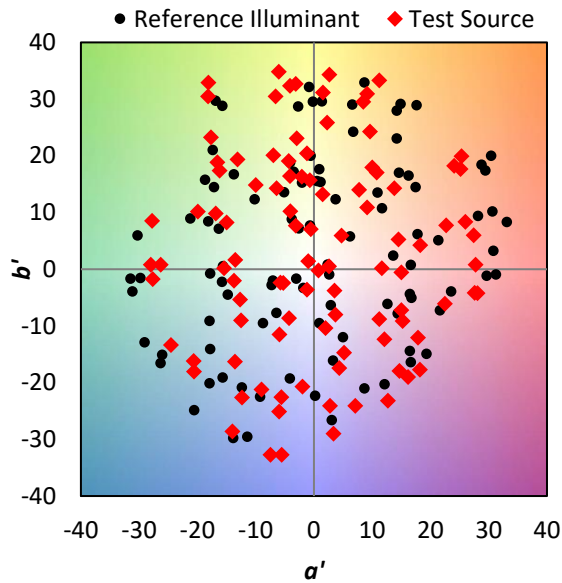
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

Summary

$R_f = 74.7$
 $R_g = 95.4$
 $CIE R_a = 71.9$
 $R_9 = -23.5$

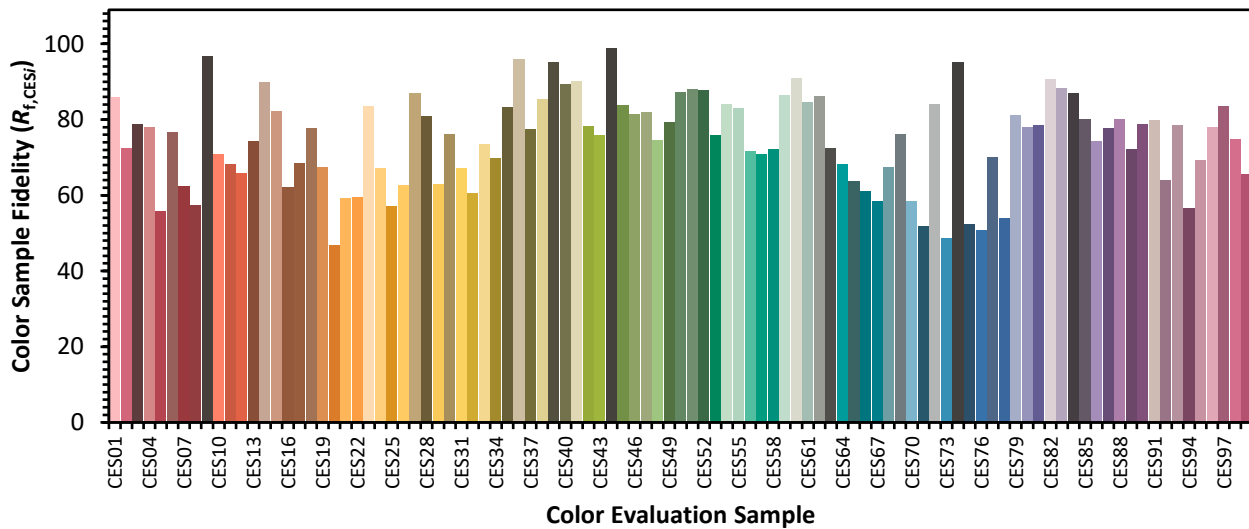


Color Vector Graphics

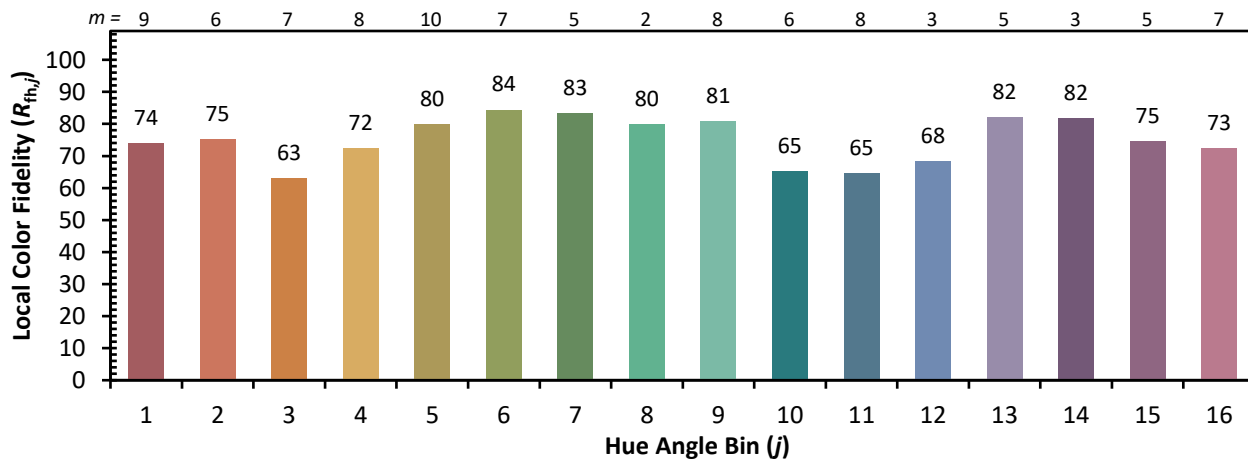
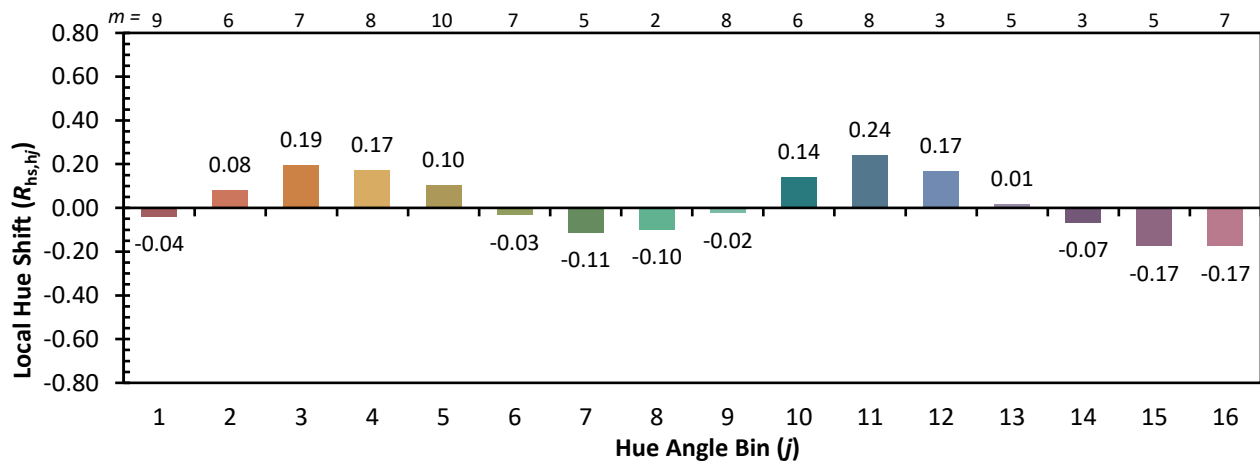
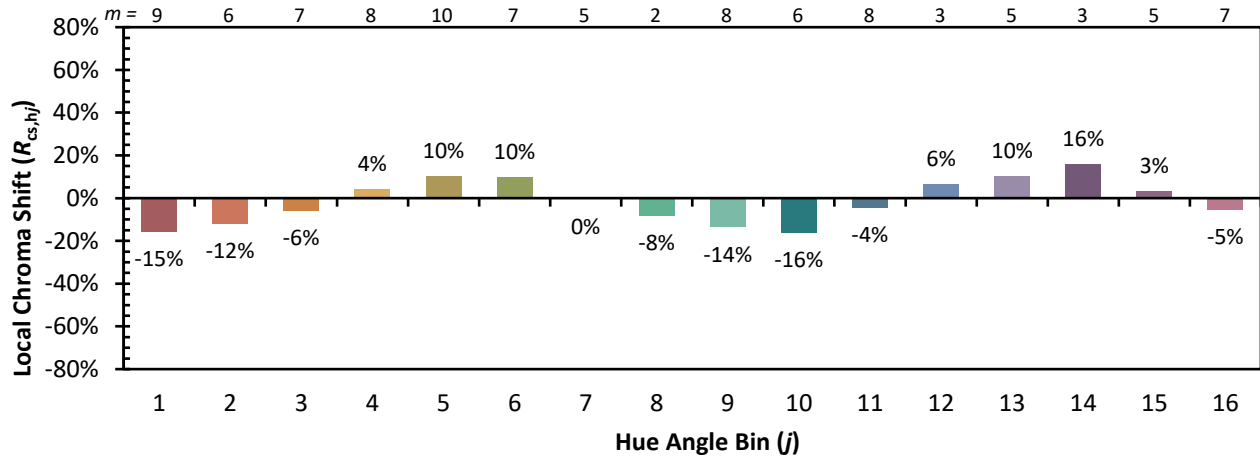


Individual Sample Fidelity Index ($R_{f,i}$)

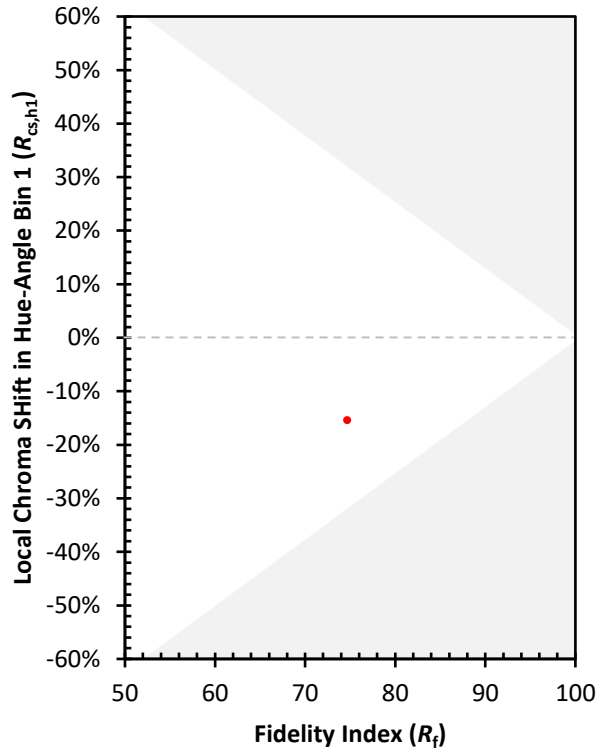
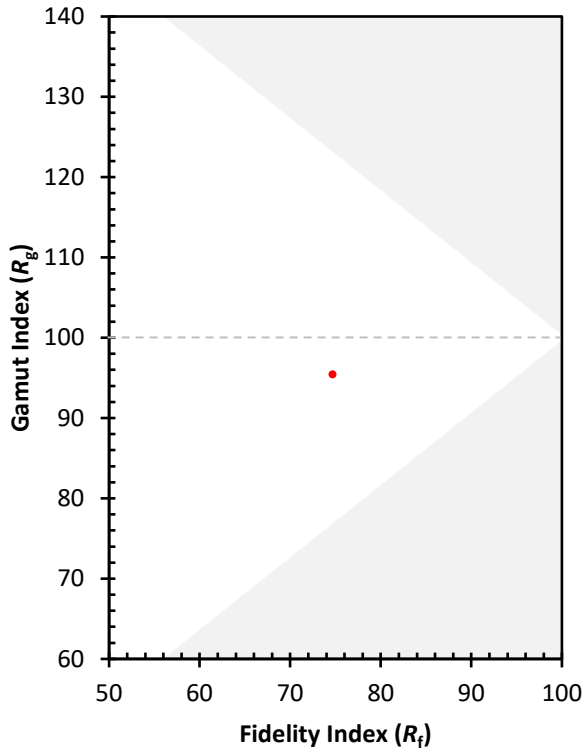
CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 51
CES02 = 61	CES27 = 87	CES52 = 88	CES77 = 70
CES03 = 30	CES28 = 81	CES53 = 76	CES78 = 54
CES04 = 70	CES29 = 63	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 76	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 67	CES56 = 72	CES81 = 79
CES07 = 40	CES32 = 61	CES57 = 71	CES82 = 91
CES08 = 39	CES33 = 73	CES58 = 72	CES83 = 88
CES09 = 29	CES34 = 70	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 83	CES60 = 91	CES85 = 80
CES11 = 57	CES36 = 96	CES61 = 85	CES86 = 74
CES12 = 63	CES37 = 77	CES62 = 86	CES87 = 78
CES13 = 42	CES38 = 85	CES63 = 72	CES88 = 80
CES14 = 74	CES39 = 95	CES64 = 68	CES89 = 72
CES15 = 71	CES40 = 89	CES65 = 64	CES90 = 79
CES16 = 46	CES41 = 90	CES66 = 61	CES91 = 80
CES17 = 49	CES42 = 78	CES67 = 58	CES92 = 64
CES18 = 56	CES43 = 76	CES68 = 67	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 76	CES94 = 57
CES20 = 65	CES45 = 84	CES70 = 58	CES95 = 69
CES21 = 86	CES46 = 81	CES71 = 52	CES96 = 78
CES22 = 78	CES47 = 82	CES72 = 84	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 66
CES25 = 72	CES50 = 87	CES75 = 52	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)