

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: P833316

Luminaire Tested: **TTN-D1-830-U-DL-CG-UPL3**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P833316
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-D1-830-U-DL-CG-UPL3
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
3000K, 80 CRI LEDS AND DRIVE LANE DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3572.7 lumens
Efficiency: N/A
Efficacy: 107.0 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B1 - U4 - G1

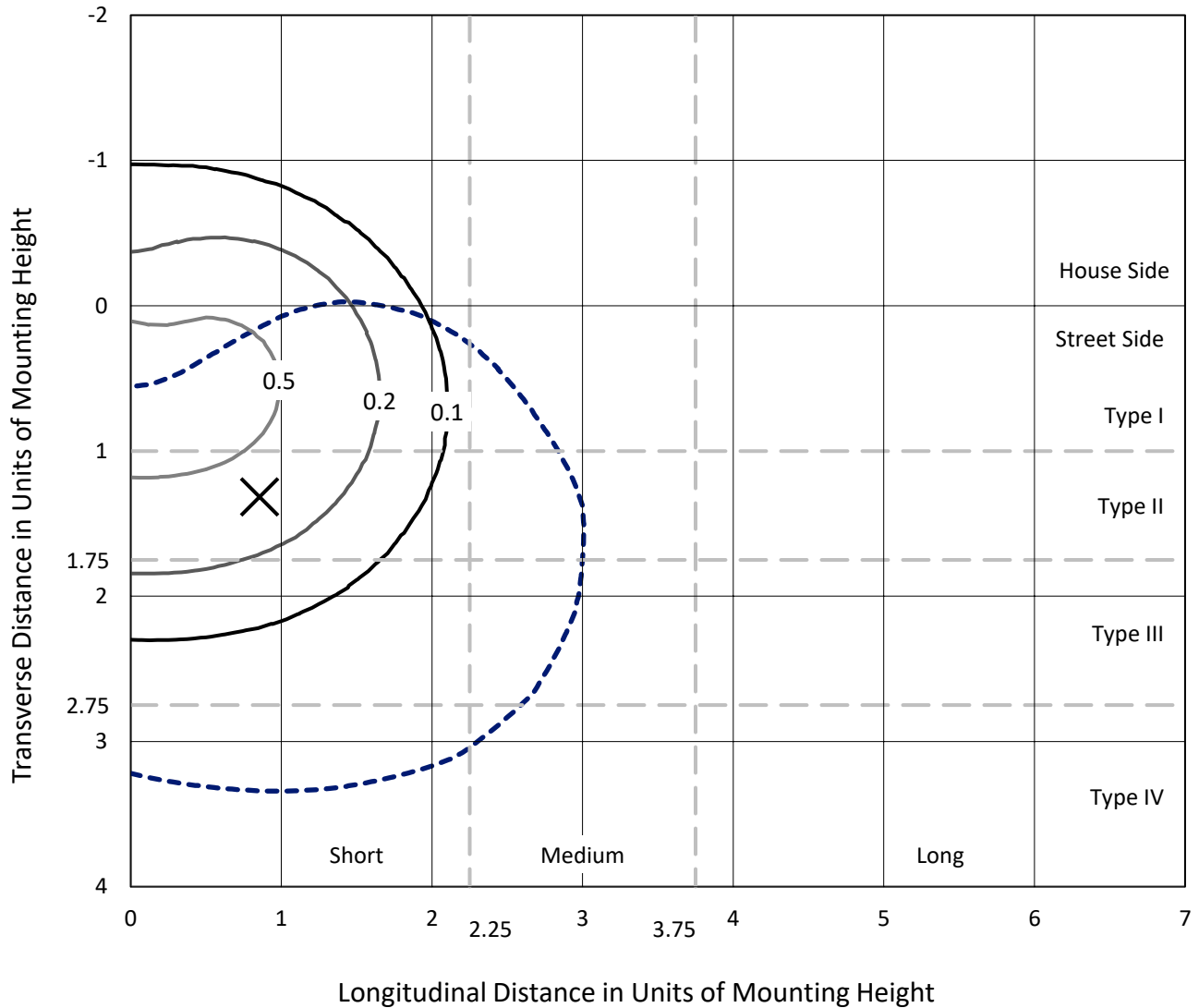
Input Watts (W): 33.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

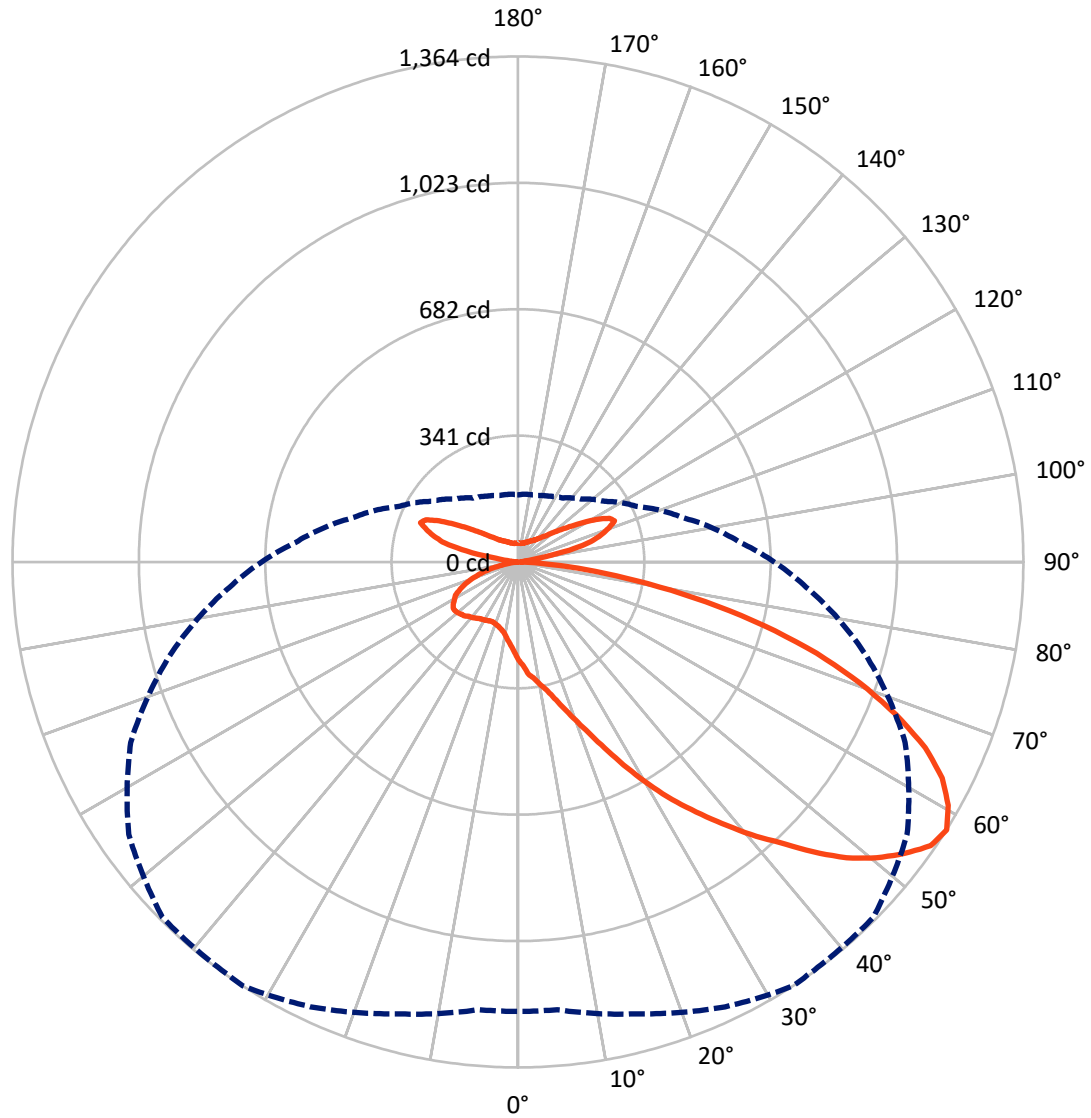
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.7 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 33-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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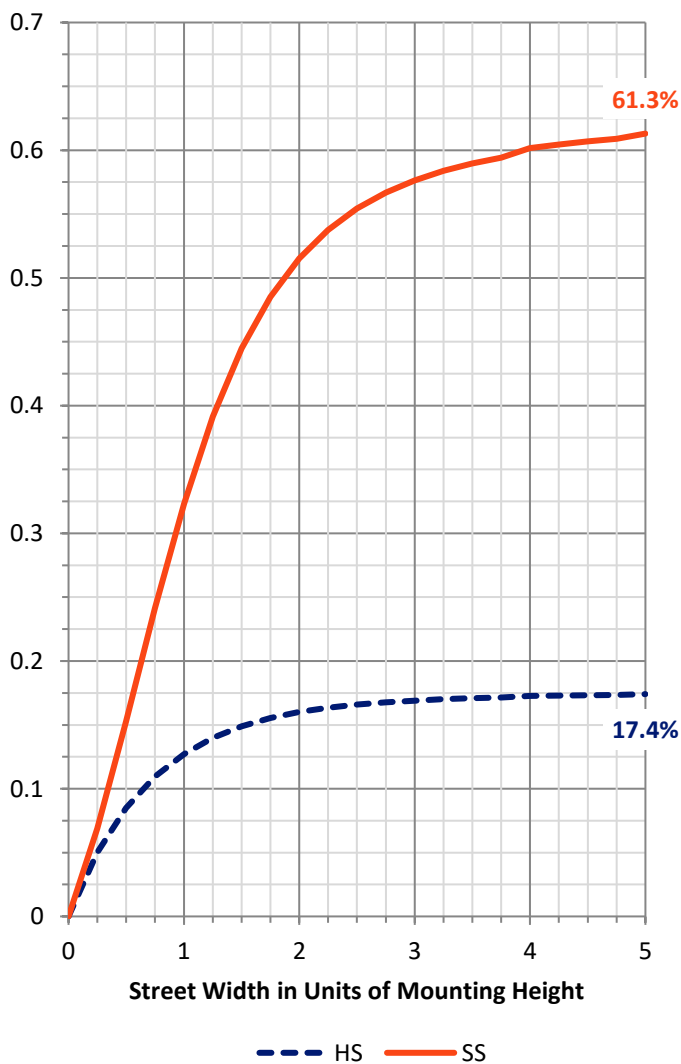
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	625.2	370.3	995.5
	% Fixture	17.5	10.4	27.9
Street Side	Lumens	2206.8	370.3	2577.2
	% Fixture	61.8	10.4	72.1
Total	Lumens	2832.0	740.7	3572.7
	% Fixture	79.3	20.7	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.4	0.7
10°-20°	82.3	2.3
20°-30°	173.6	4.9
30°-40°	315.3	8.8
40°-50°	498.2	13.9
50°-60°	661.6	18.5
60°-70°	636.8	17.8
70°-80°	373.8	10.5
80°-90°	65.2	1.8
90°-100°	16.5	0.5
100°-110°	168.0	4.7
110°-120°	245.6	6.9
120°-130°	142.5	4.0
130°-140°	75.5	2.1
140°-150°	44.8	1.3
150°-160°	27.6	0.8
160°-170°	15.1	0.4
170°-180°	4.9	0.1
0°-90°	2832.0	79.3
0°-180°	3572.7	100.0

Coefficient of Utilization

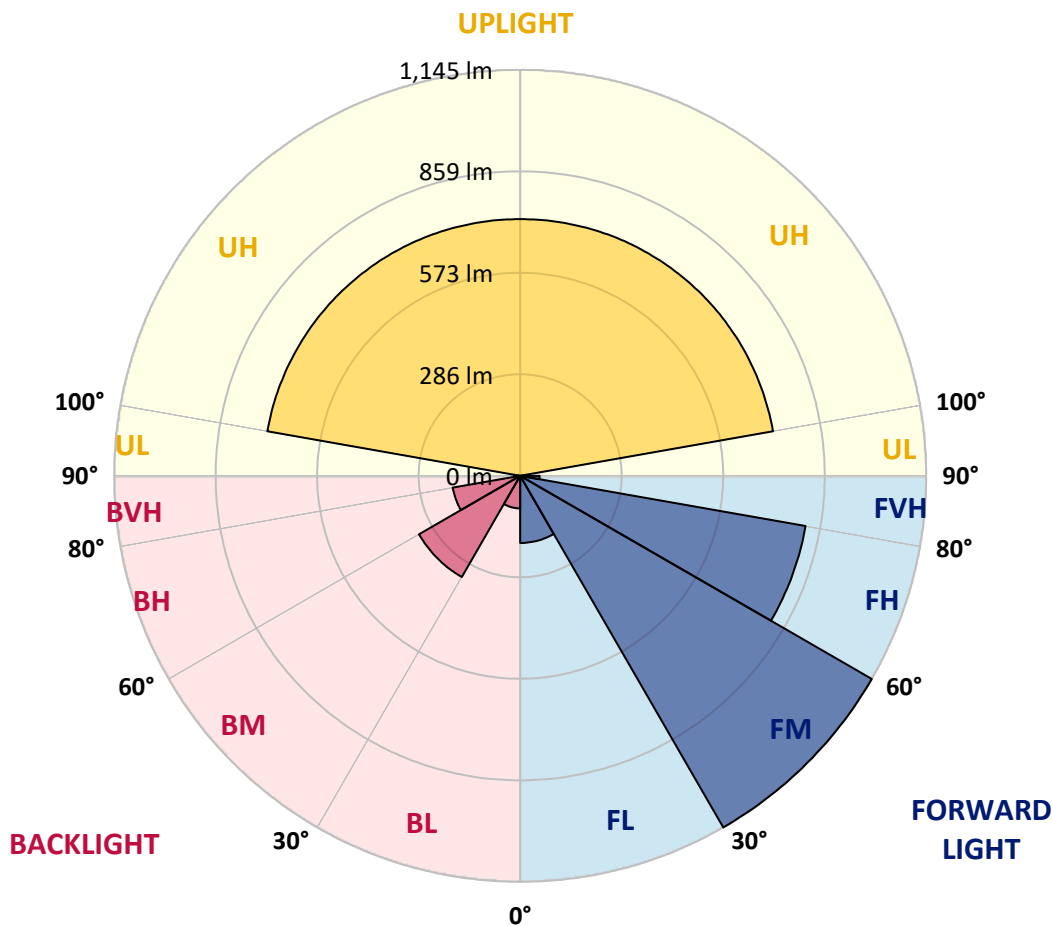


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	189.4	5.3			
FM (30°-60°)	1145.3	32.1			
FH (60°-80°)	817.4	22.9			G1/1800
FVH (80°-90°)	54.7	1.5			G1/100
BL (0°-30°)	91.9	2.6	B0/110		
BM (30°-60°)	329.6	9.2	B1/1000		
BH (60°-80°)	193.2	5.4	B1/500		G1/500
BVH (80°-90°)	10.5	0.3			G1/100
UL (90°-100°)	16.5	0.5		U2/50	
UH (100°-180°)	724.1	20.3		U4/1000	

BUG Rating: B1-U4-G1
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
0°	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3
2.5°	282.7	285.2	282.7	282.7	280.2	280.2	277.7	275.3	272.8	270.3	265.3
5°	314.9	314.9	312.4	307.5	305.0	302.5	297.6	290.1	285.2	277.7	270.3
7.5°	329.8	329.8	327.3	322.4	317.4	314.9	307.5	297.6	290.1	280.2	270.3
10°	349.6	352.1	347.2	342.2	337.2	334.8	324.8	312.4	300.0	287.7	272.8
12.5°	372.0	374.4	372.0	364.5	357.1	354.6	344.7	329.8	314.9	297.6	280.2
15°	401.7	406.7	399.2	394.3	386.8	384.4	372.0	354.6	337.2	314.9	292.6
17.5°	436.4	438.9	434.0	426.5	421.6	419.1	406.7	386.8	362.0	337.2	310.0
20°	476.1	478.6	476.1	466.2	461.2	458.8	446.4	424.0	394.3	367.0	332.3
22.5°	523.2	528.2	520.7	513.3	508.3	508.3	493.5	468.7	434.0	399.2	359.6
25°	577.8	585.2	575.3	570.3	565.4	562.9	550.5	520.7	481.1	438.9	389.3
27.5°	644.7	649.7	642.3	639.8	629.9	629.9	610.0	575.3	533.1	483.6	426.5
30°	704.2	709.2	704.2	704.2	696.8	694.3	674.5	639.8	587.7	528.2	458.8
32.5°	761.3	766.2	763.8	766.2	763.8	761.3	736.5	699.3	647.2	570.3	491.0
35°	818.3	825.8	823.3	830.7	828.2	825.8	805.9	761.3	699.3	622.4	525.7
37.5°	877.8	885.3	885.3	892.7	895.2	895.2	872.9	825.8	756.3	669.5	565.4
40°	942.3	949.7	949.7	962.1	967.1	967.1	942.3	895.2	818.3	721.6	607.5
42.5°	1004.3	1011.7	1014.2	1026.6	1034.1	1036.5	1016.7	962.1	872.9	773.7	647.2
45°	1063.8	1071.3	1078.7	1103.5	1115.9	1113.4	1098.5	1041.5	942.3	828.2	689.4
47.5°	1120.8	1130.8	1143.2	1175.4	1192.8	1190.3	1180.4	1115.9	1006.8	880.3	726.6
50°	1165.5	1172.9	1197.7	1232.4	1254.8	1257.2	1242.4	1180.4	1061.3	920.0	753.8
52.5°	1200.2	1210.1	1239.9	1289.5	1306.8	1314.3	1296.9	1234.9	1115.9	954.7	776.2
55°	1225.0	1225.0	1269.6	1326.7	1351.5	1356.4	1356.4	1279.6	1148.1	977.0	788.6
57.5°	1212.6	1212.6	1262.2	1324.2	1363.9	1361.4	1356.4	1282.0	1153.1	972.1	781.1
60°	1177.9	1185.3	1232.4	1294.4	1334.1	1331.6	1316.7	1249.8	1128.3	952.2	766.2
62.5°	1130.8	1143.2	1192.8	1239.9	1284.5	1291.9	1272.1	1212.6	1086.1	922.5	739.0
65°	1041.5	1058.9	1120.8	1172.9	1207.6	1222.5	1197.7	1143.2	1029.1	865.4	681.9
67.5°	942.3	954.7	1006.8	1081.2	1101.0	1115.9	1103.5	1046.5	949.7	773.7	617.5
70°	828.2	848.1	882.8	957.2	979.5	994.4	994.4	937.3	845.6	679.5	540.6
72.5°	694.3	716.6	758.8	813.4	843.1	853.0	850.6	803.4	721.6	575.3	456.3
75°	548.0	565.4	615.0	654.7	686.9	694.3	691.9	652.2	577.8	463.7	362.0
77.5°	404.2	421.6	458.8	488.5	518.3	513.3	513.3	483.6	436.4	344.7	275.3
80°	265.3	280.2	312.4	322.4	354.6	352.1	352.1	329.8	297.6	230.6	183.5
82.5°	146.3	158.7	181.0	190.9	210.8	205.8	208.3	193.4	173.6	128.9	104.1
85°	52.1	62.0	74.4	81.8	91.8	91.8	91.8	79.4	74.4	49.6	42.2
87.5°	2.5	5.0	9.9	9.9	14.9	14.9	14.9	9.9	9.9	2.5	2.5
90°	6.3	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.3
92.5°	6.3	6.3	6.3	8.9	9.9	10.1	8.9	10.1	7.6	7.6	6.3
95°	7.6	7.6	8.9	11.4	13.4	13.9	15.2	15.2	8.9	8.9	7.6
97.5°	10.1	11.4	11.4	13.9	21.0	22.8	41.8	25.3	12.7	12.7	11.4
100°	16.5	17.7	17.7	31.7	60.1	67.2	90.0	64.6	32.9	24.1	17.7
102.5°	53.2	55.8	68.4	102.6	142.2	152.1	138.1	116.6	110.2	76.0	60.8
105°	135.6	134.3	144.5	171.1	204.5	212.9	209.1	192.6	174.9	150.8	139.4
107.5°	178.7	178.7	187.5	210.4	235.7	242.0	282.6	286.4	226.8	198.9	186.3
110°	201.5	201.5	209.1	228.1	261.5	269.9	326.9	324.4	280.0	245.8	229.4



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
112.5°	206.5	207.8	218.0	247.1	283.6	292.7	318.1	306.7	288.9	273.7	261.0
115°	214.2	214.2	225.6	253.4	273.7	278.8	288.9	276.2	262.3	252.2	247.1
117.5°	211.6	215.4	218.0	233.2	246.3	249.6	257.2	250.9	231.9	224.3	221.8
120°	196.4	196.4	198.9	206.5	213.6	215.4	219.2	216.7	204.0	197.7	196.4
122.5°	174.9	176.1	174.9	178.7	183.7	185.0	188.8	186.3	176.1	173.6	173.6
125°	153.3	153.3	152.1	154.6	157.6	158.4	157.1	158.4	153.3	152.1	152.1
127.5°	138.1	136.9	134.3	135.6	136.6	136.9	136.9	138.1	133.1	134.3	135.6
130°	122.9	122.9	120.4	120.4	120.4	120.4	117.8	120.4	117.8	119.1	120.4
132.5°	109.0	109.0	105.2	103.9	103.9	103.9	103.9	105.2	103.9	106.4	109.0
135°	97.6	97.6	93.8	95.0	95.0	95.0	93.8	95.0	93.8	96.3	97.6
137.5°	88.7	88.7	86.2	86.2	86.2	86.2	84.9	86.2	86.2	87.4	90.0
140°	81.1	81.1	79.8	79.8	78.8	78.6	79.8	79.8	79.8	81.1	82.4
142.5°	77.3	76.0	74.8	73.5	74.5	74.8	74.8	74.8	73.5	74.8	77.3
145°	71.0	71.0	69.7	69.7	69.7	69.7	71.0	69.7	69.7	71.0	71.0
147.5°	67.2	67.2	65.9	67.2	67.2	67.2	67.2	67.2	65.9	67.2	67.2
150°	65.9	64.6	63.4	64.6	64.6	64.6	63.4	63.4	63.4	63.4	64.6
152.5°	62.1	62.1	60.8	62.1	61.1	60.8	60.8	60.8	60.8	60.8	62.1
155°	59.6	59.6	58.3	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6
157.5°	57.0	58.3	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0	58.3
160°	55.8	55.8	55.8	55.8	54.8	54.5	54.5	54.5	55.8	55.8	55.8
162.5°	54.5	54.5	54.5	54.5	53.5	53.2	53.2	53.2	53.2	54.5	54.5
165°	54.5	53.2	53.2	53.2	52.2	52.0	52.0	52.0	52.0	53.2	54.5
167.5°	52.0	52.0	52.0	52.0	52.0	52.0	50.7	50.7	52.0	52.0	52.0
170°	52.0	52.0	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7
172.5°	52.0	52.0	52.0	52.0	51.0	50.7	50.7	50.7	50.7	50.7	52.0
175°	52.0	52.0	52.0	52.0	51.0	50.7	50.7	50.7	52.0	52.0	52.0
177.5°	52.0	52.0	52.0	52.0	51.0	50.7	52.0	52.0	52.0	52.0	52.0
180°	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3	265.3
2.5°	262.9	260.4	257.9	252.9	250.5	248.0	245.5	243.0	243.0	243.0	243.0
5°	265.3	262.9	255.4	248.0	240.5	233.1	228.1	225.7	223.2	220.7	220.7
7.5°	265.3	260.4	250.5	240.5	233.1	223.2	215.7	208.3	203.3	200.9	200.9
10°	267.8	260.4	248.0	238.1	225.7	213.3	203.3	193.4	188.5	183.5	183.5
12.5°	272.8	265.3	248.0	235.6	220.7	205.8	193.4	183.5	176.1	171.1	171.1
15°	282.7	272.8	252.9	235.6	218.2	200.9	188.5	176.1	168.6	163.7	163.7
17.5°	297.6	285.2	260.4	235.6	215.7	198.4	183.5	171.1	161.2	156.2	156.2
20°	314.9	300.0	270.3	240.5	215.7	195.9	181.0	166.1	156.2	151.3	151.3
22.5°	339.7	317.4	282.7	248.0	220.7	198.4	178.5	163.7	153.7	148.8	148.8
25°	367.0	342.2	297.6	257.9	225.7	198.4	178.5	163.7	153.7	148.8	146.3
27.5°	396.8	369.5	314.9	267.8	230.6	203.3	181.0	163.7	153.7	148.8	148.8
30°	424.0	391.8	332.3	280.2	238.1	205.8	183.5	166.1	153.7	148.8	148.8
32.5°	453.8	416.6	349.6	292.6	245.5	210.8	186.0	168.6	156.2	151.3	148.8
35°	483.6	441.4	367.0	302.5	252.9	215.7	188.5	171.1	158.7	153.7	153.7
37.5°	515.8	468.7	384.4	314.9	260.4	220.7	193.4	173.6	161.2	156.2	156.2
40°	550.5	496.0	401.7	324.8	267.8	225.7	198.4	178.5	166.1	161.2	161.2
42.5°	585.2	525.7	421.6	337.2	275.3	230.6	200.9	183.5	171.1	166.1	166.1
45°	619.9	550.5	438.9	349.6	282.7	238.1	208.3	188.5	176.1	171.1	171.1
47.5°	652.2	577.8	453.8	357.1	290.1	243.0	210.8	193.4	181.0	178.5	176.1
50°	674.5	595.1	463.7	364.5	292.6	245.5	215.7	195.9	186.0	181.0	181.0
52.5°	691.9	612.5	471.2	369.5	295.1	248.0	218.2	200.9	190.9	186.0	183.5
55°	701.8	615.0	471.2	364.5	292.6	248.0	218.2	200.9	190.9	186.0	186.0
57.5°	691.9	602.6	461.2	354.6	285.2	240.5	210.8	195.9	186.0	183.5	181.0
60°	672.0	582.7	441.4	339.7	272.8	228.1	200.9	188.5	181.0	178.5	176.1
62.5°	644.7	557.9	421.6	319.9	255.4	213.3	193.4	178.5	173.6	171.1	168.6
65°	590.2	510.8	389.3	295.1	233.1	195.9	176.1	166.1	161.2	156.2	153.7
67.5°	530.7	458.8	344.7	265.3	205.8	176.1	158.7	148.8	141.3	141.3	138.9
70°	466.2	404.2	297.6	225.7	178.5	153.7	136.4	128.9	124.0	124.0	121.5
72.5°	389.3	339.7	248.0	183.5	146.3	126.5	114.1	106.6	104.1	104.1	101.7
75°	312.4	267.8	195.9	143.8	114.1	99.2	89.3	84.3	81.8	81.8	79.4
77.5°	230.6	195.9	141.3	104.1	81.8	71.9	64.5	62.0	59.5	59.5	57.0
80°	153.7	128.9	91.8	67.0	49.6	44.6	39.7	39.7	37.2	39.7	37.2
82.5°	84.3	69.4	49.6	34.7	24.8	22.3	19.8	19.8	22.3	22.3	19.8
85°	32.2	24.8	17.4	9.9	7.4	7.4	7.4	7.4	7.4	7.4	5.0
87.5°	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	6.3	6.3	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.3	6.3
92.5°	6.3	6.3	7.6	7.6	10.1	8.9	10.1	8.9	6.3	6.3	6.3
95°	7.6	7.6	8.9	8.9	15.2	15.2	13.9	11.4	8.9	7.6	7.6
97.5°	10.1	11.4	12.7	12.7	25.3	41.8	22.8	13.9	11.4	11.4	10.1
100°	17.7	17.7	24.1	32.9	64.6	90.0	67.2	31.7	17.7	17.7	16.5
102.5°	58.3	60.8	76.0	110.2	116.6	138.1	152.1	102.6	68.4	55.8	53.2
105°	139.4	139.4	150.8	174.9	192.6	209.1	212.9	171.1	144.5	134.3	135.6
107.5°	185.0	186.3	198.9	226.8	286.4	282.6	242.0	210.4	187.5	178.7	178.7
110°	226.8	229.4	245.8	280.0	324.4	326.9	269.9	228.1	209.1	201.5	201.5



REPORT NUMBER: P833316
 CATALOG NUMBER: TTN-D1-830-U-DL-CG-UPL3

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	258.5	261.0	273.7	288.9	306.7	318.1	292.7	247.1	218.0	207.8	206.5
115°	249.6	247.1	252.2	262.3	276.2	288.9	278.8	253.4	225.6	214.2	214.2
117.5°	218.0	221.8	224.3	231.9	250.9	257.2	249.6	233.2	218.0	215.4	211.6
120°	193.9	196.4	197.7	204.0	216.7	219.2	215.4	206.5	198.9	196.4	196.4
122.5°	171.1	173.6	173.6	176.1	186.3	188.8	185.0	178.7	174.9	176.1	174.9
125°	150.8	152.1	152.1	153.3	158.4	157.1	158.4	154.6	152.1	153.3	153.3
127.5°	134.3	135.6	134.3	133.1	138.1	136.9	136.9	135.6	134.3	136.9	138.1
130°	121.6	120.4	119.1	117.8	120.4	117.8	120.4	120.4	120.4	122.9	122.9
132.5°	109.0	109.0	106.4	103.9	105.2	103.9	103.9	103.9	105.2	109.0	109.0
135°	97.6	97.6	96.3	93.8	95.0	93.8	95.0	95.0	93.8	97.6	97.6
137.5°	91.2	90.0	87.4	86.2	86.2	84.9	86.2	86.2	86.2	88.7	88.7
140°	82.4	82.4	81.1	79.8	79.8	79.8	78.6	79.8	79.8	81.1	81.1
142.5°	77.3	77.3	74.8	73.5	74.8	74.8	74.8	73.5	74.8	76.0	77.3
145°	72.2	71.0	71.0	69.7	69.7	71.0	69.7	69.7	69.7	71.0	71.0
147.5°	68.4	67.2	67.2	65.9	67.2	67.2	67.2	67.2	65.9	67.2	67.2
150°	64.6	64.6	63.4	63.4	63.4	63.4	64.6	64.6	63.4	64.6	65.9
152.5°	63.4	62.1	60.8	60.8	60.8	60.8	60.8	62.1	60.8	62.1	62.1
155°	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	58.3	59.6	59.6
157.5°	58.3	58.3	57.0	57.0	57.0	57.0	57.0	57.0	57.0	58.3	57.0
160°	57.0	55.8	55.8	55.8	54.5	54.5	54.5	55.8	55.8	55.8	55.8
162.5°	55.8	54.5	54.5	53.2	53.2	53.2	53.2	54.5	54.5	54.5	54.5
165°	53.2	54.5	53.2	52.0	52.0	52.0	52.0	53.2	53.2	53.2	54.5
167.5°	53.2	52.0	52.0	52.0	50.7	50.7	52.0	52.0	52.0	52.0	52.0
170°	52.0	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	52.0	52.0
172.5°	52.0	52.0	50.7	50.7	50.7	50.7	50.7	52.0	52.0	52.0	52.0
175°	50.7	52.0	52.0	52.0	50.7	50.7	50.7	52.0	52.0	52.0	52.0
177.5°	52.0	52.0	52.0	52.0	52.0	52.0	50.7	52.0	52.0	52.0	52.0
180°	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0	52.0

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: SP1-2411-284-4

Test Date: 11/22/2024

Luminaire Tested: TTN-D0-830-U-WQ

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

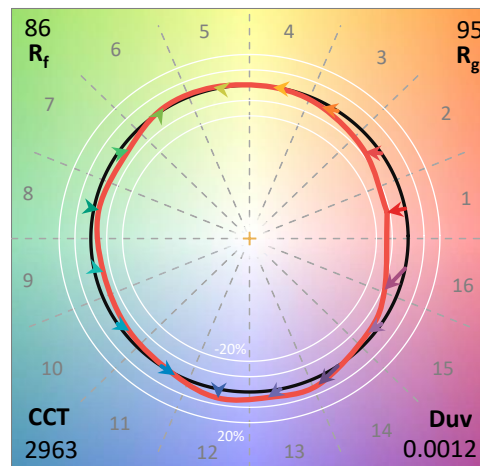
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/22/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-830-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3000K, 80 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 2963
 CIE u': 0.2515
 CIE v': 0.5238
 Duv: 0.0012
 CIE x: 0.4414
 CIE y: 0.4086
 CIE z: 0.1501
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 582
 Purity: 55.12798
 Rf: 86.1
 Rg: 94.9

CRI (Ra):	82.9		
R1:	81.4	R9:	3.9
R2:	91.9	R10:	82.5
R3:	95.2	R11:	82.3
R4:	81.6	R12:	76.5
R5:	82.3	R13:	83.9
R6:	91.4	R14:	97.8
R7:	82.0	R15:	72.6
R8:	57.2		



Test Conditions

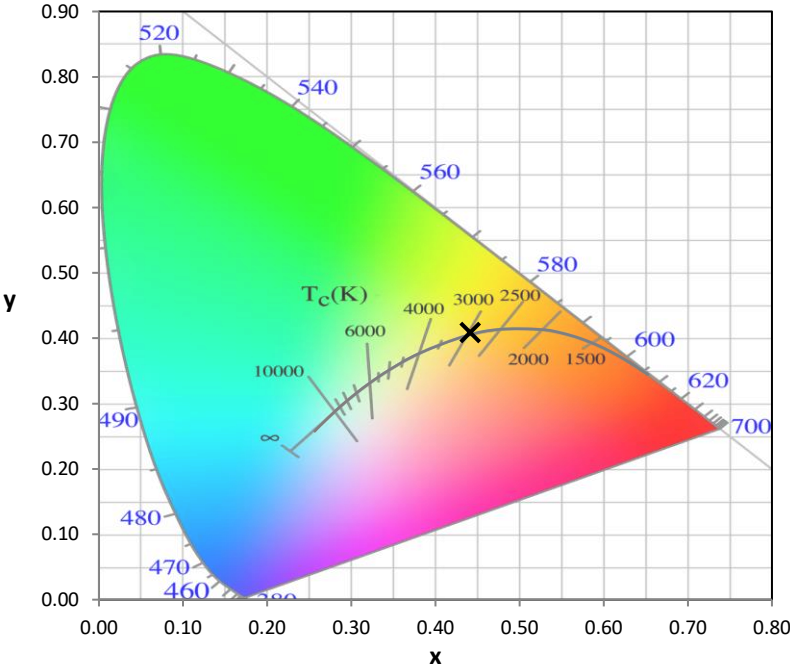
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-4

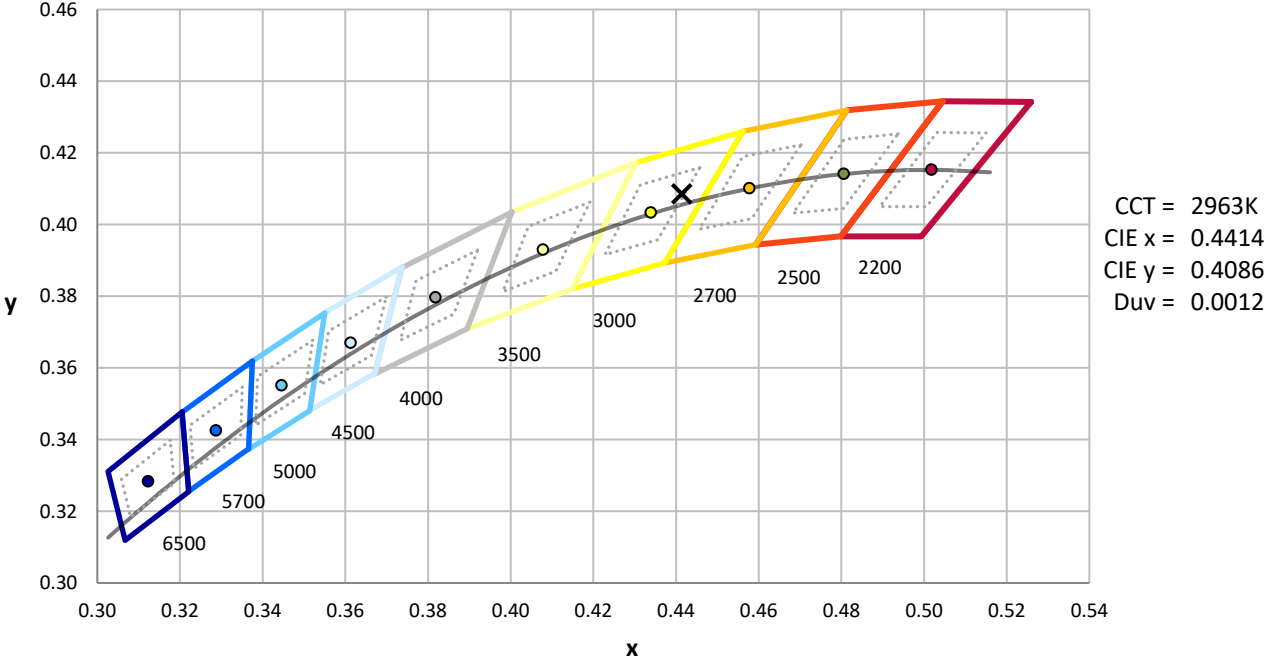
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



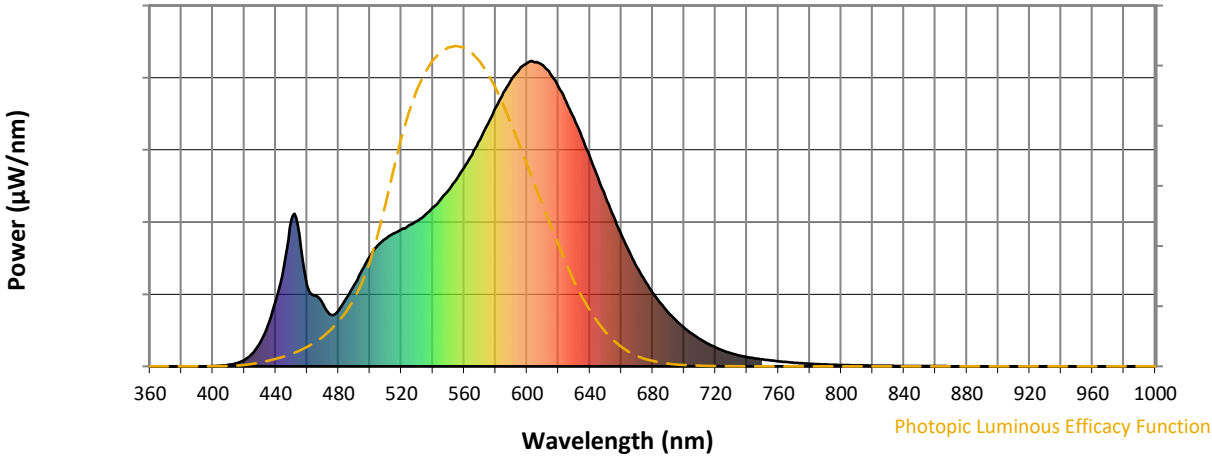
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-4

Photopic Flux vs. Wavelength

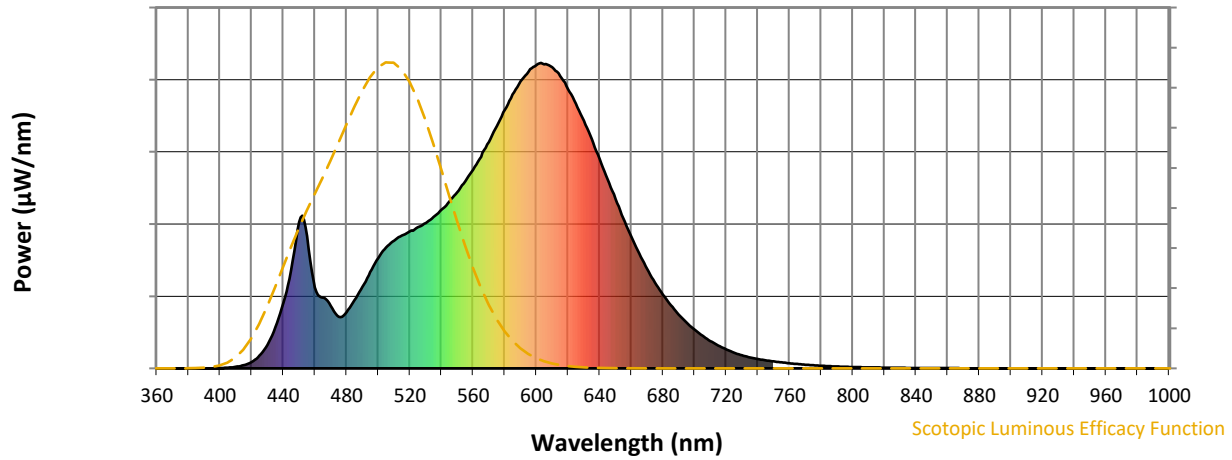


Photopic Lumens: NR

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



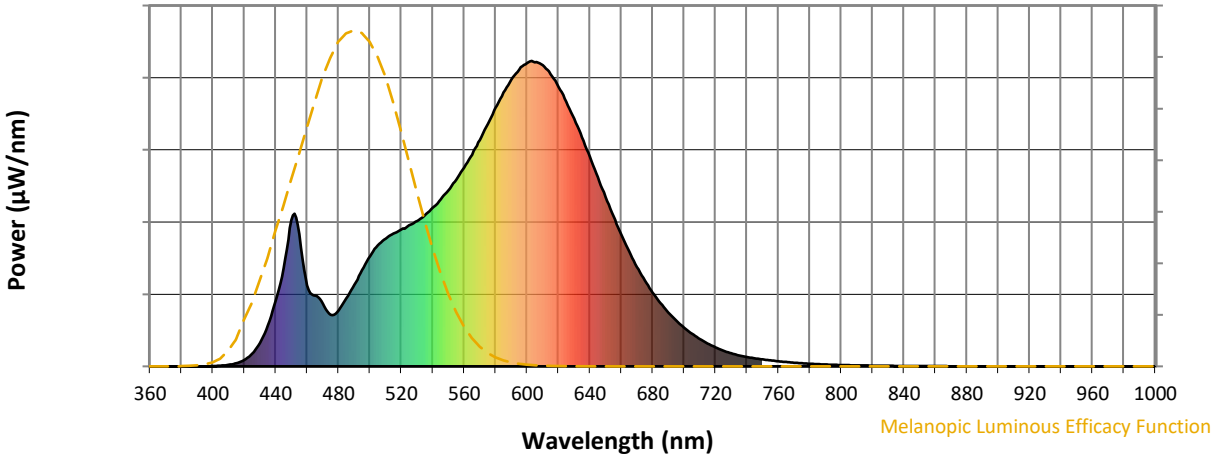
Scotopic Lumens: NR

S/P: 1.34

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

REPORT NUMBER: SP1-2411-284-4

Melanopic Flux vs. Wavelength



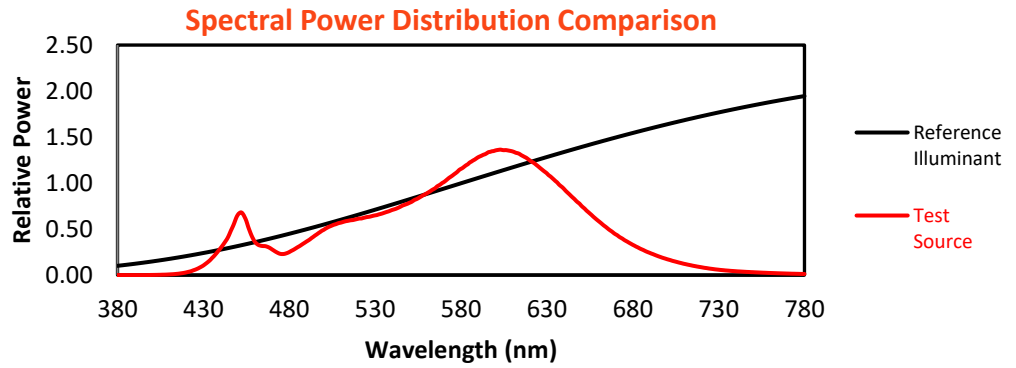
Melanopic Lumens: NR

M/P: 2.58

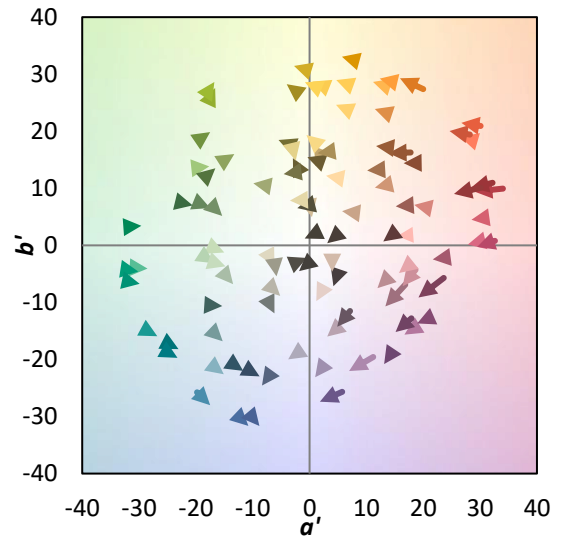
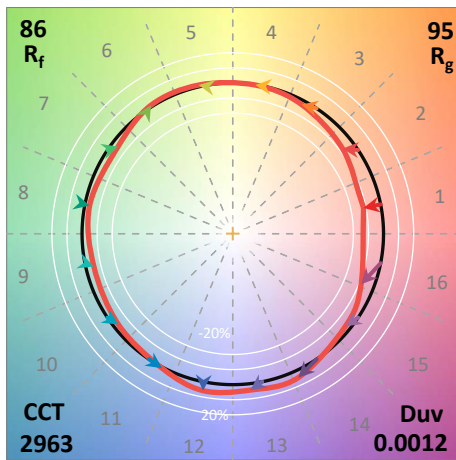
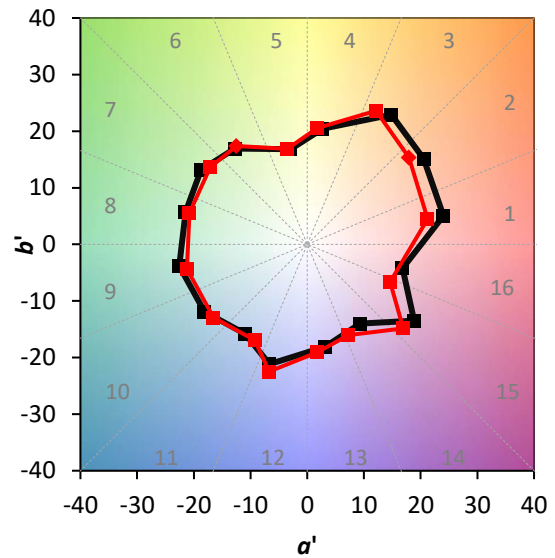
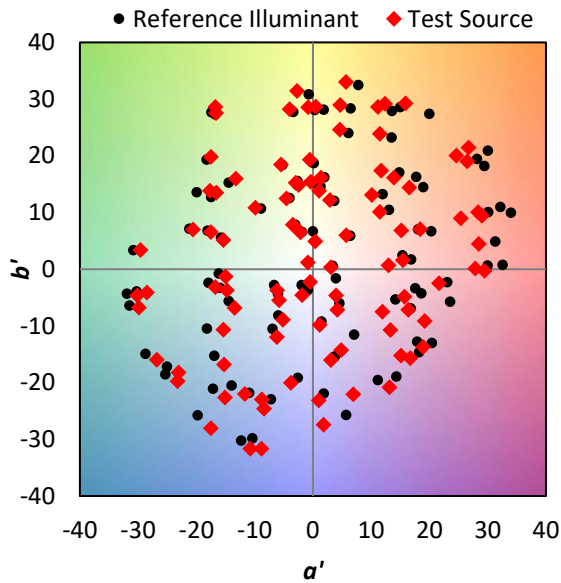
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

Summary

$R_f = 86.1$
 $R_g = 94.9$
 CIE $R_a = 82.9$
 $R_9 = 3.9$

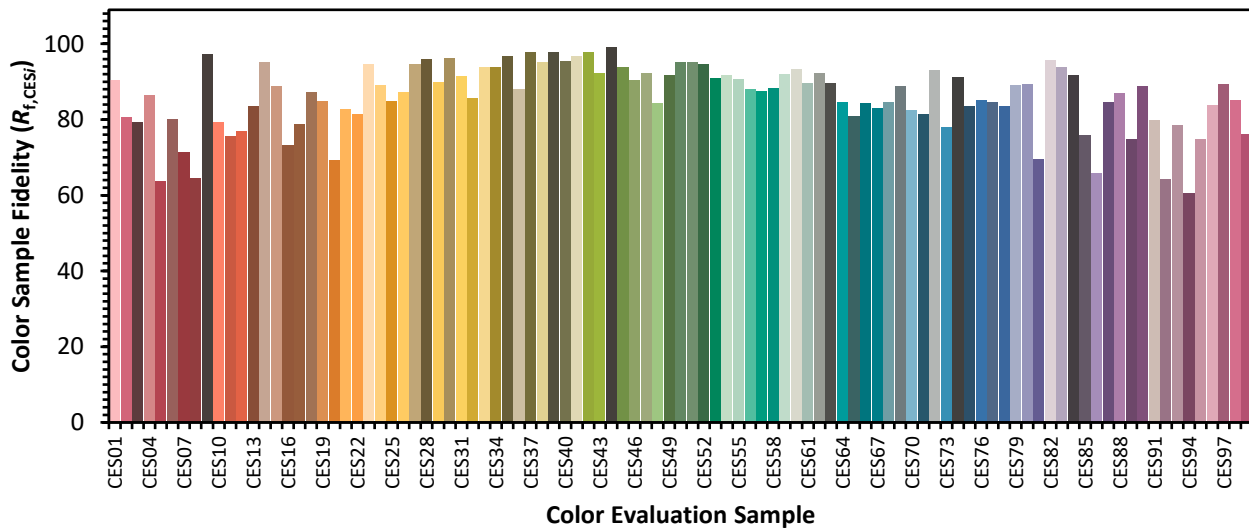


Color Vector Graphics

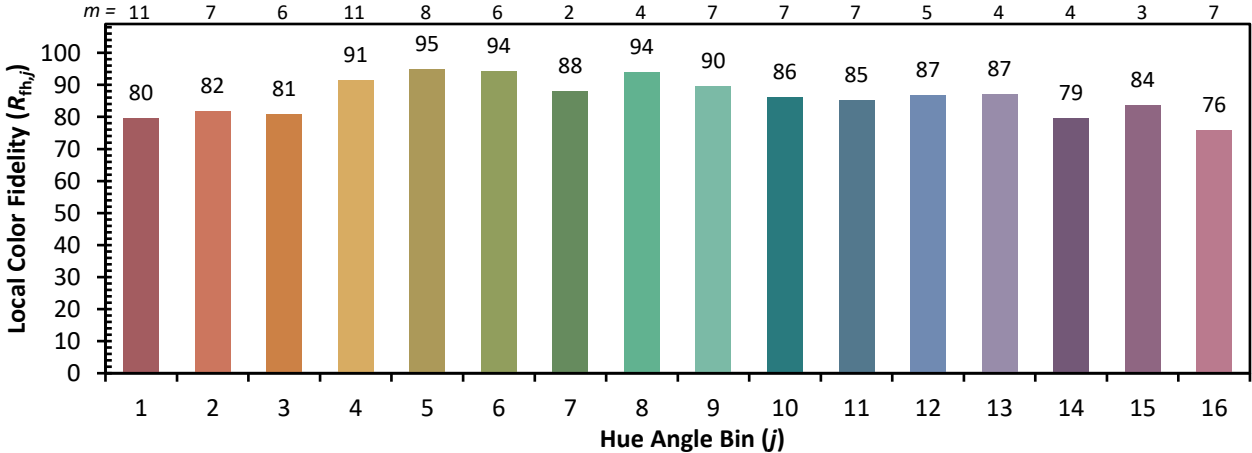
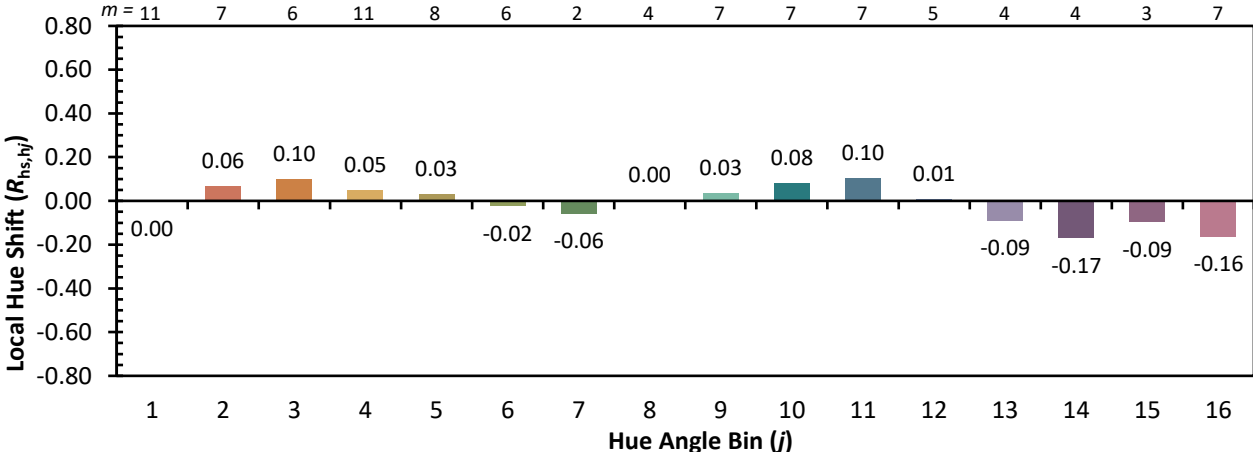
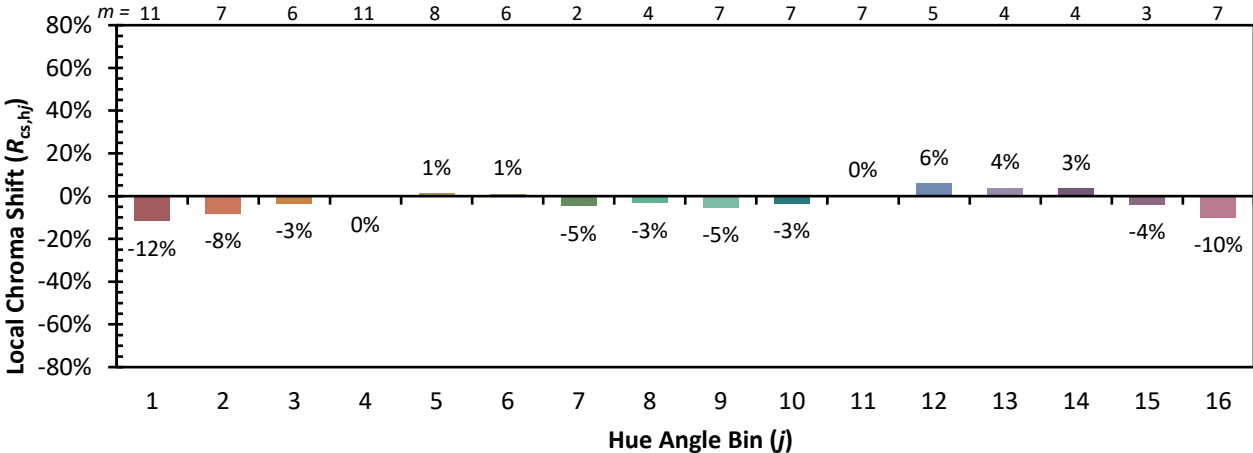


Individual Sample Fidelity Index ($R_{f,i}$)

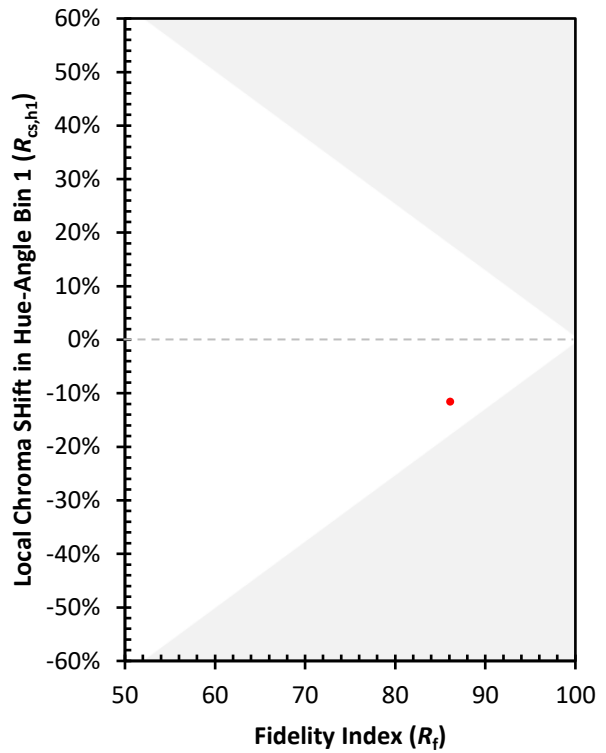
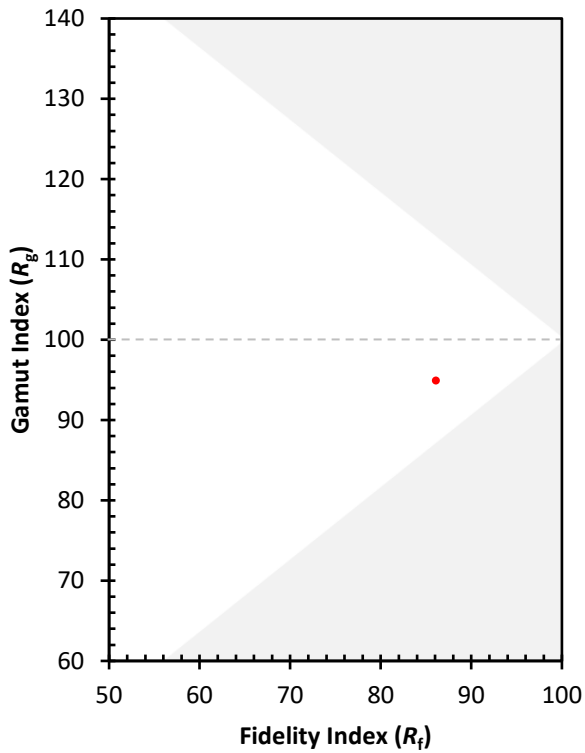
CES01 = 86	CES26 = 87	CES51 = 95	CES76 = 85
CES02 = 63	CES27 = 95	CES52 = 95	CES77 = 85
CES03 = 31	CES28 = 96	CES53 = 91	CES78 = 83
CES04 = 70	CES29 = 90	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 96	CES55 = 91	CES80 = 89
CES06 = 51	CES31 = 92	CES56 = 88	CES81 = 70
CES07 = 42	CES32 = 86	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 94	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 93	CES85 = 76
CES11 = 59	CES36 = 88	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 98	CES62 = 92	CES87 = 85
CES13 = 44	CES38 = 95	CES63 = 90	CES88 = 87
CES14 = 74	CES39 = 98	CES64 = 85	CES89 = 75
CES15 = 72	CES40 = 96	CES65 = 81	CES90 = 89
CES16 = 48	CES41 = 97	CES66 = 84	CES91 = 80
CES17 = 50	CES42 = 98	CES67 = 83	CES92 = 64
CES18 = 57	CES43 = 92	CES68 = 85	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 61
CES20 = 67	CES45 = 94	CES70 = 83	CES95 = 75
CES21 = 87	CES46 = 91	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 92	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 84	CES73 = 78	CES98 = 85
CES24 = 91	CES49 = 92	CES74 = 91	CES99 = 76
CES25 = 72	CES50 = 95	CES75 = 84	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)