

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: P832836

Luminaire Tested: **TTN-D0-740-U-DL-CG-UPL3**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P832836
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-D0-740-U-DL-CG-UPL3
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
4000K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1954.6 lumens
Efficiency: N/A
Efficacy: 110.4 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B0 - U4 - G1

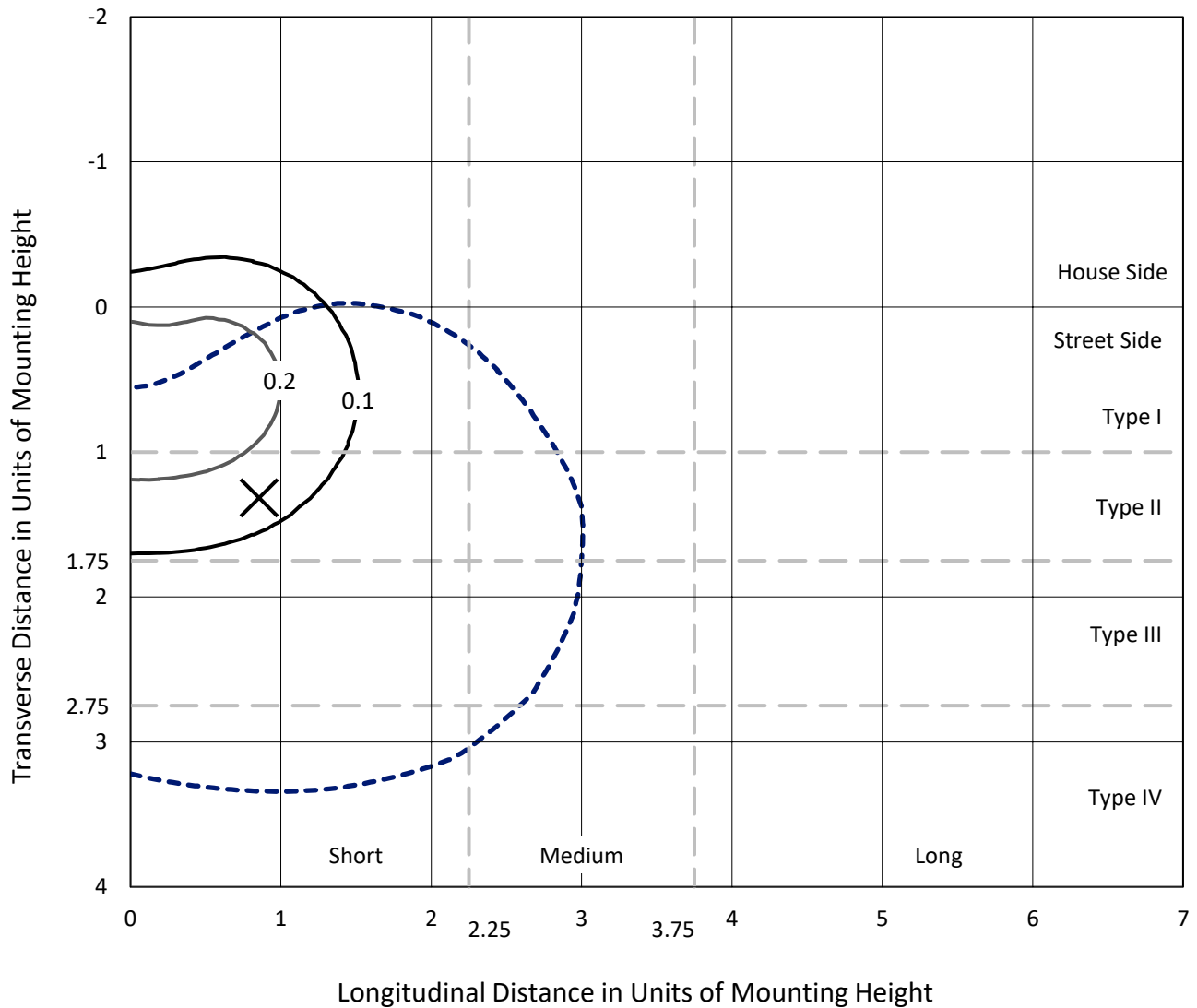
Input Watts (W): 17.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

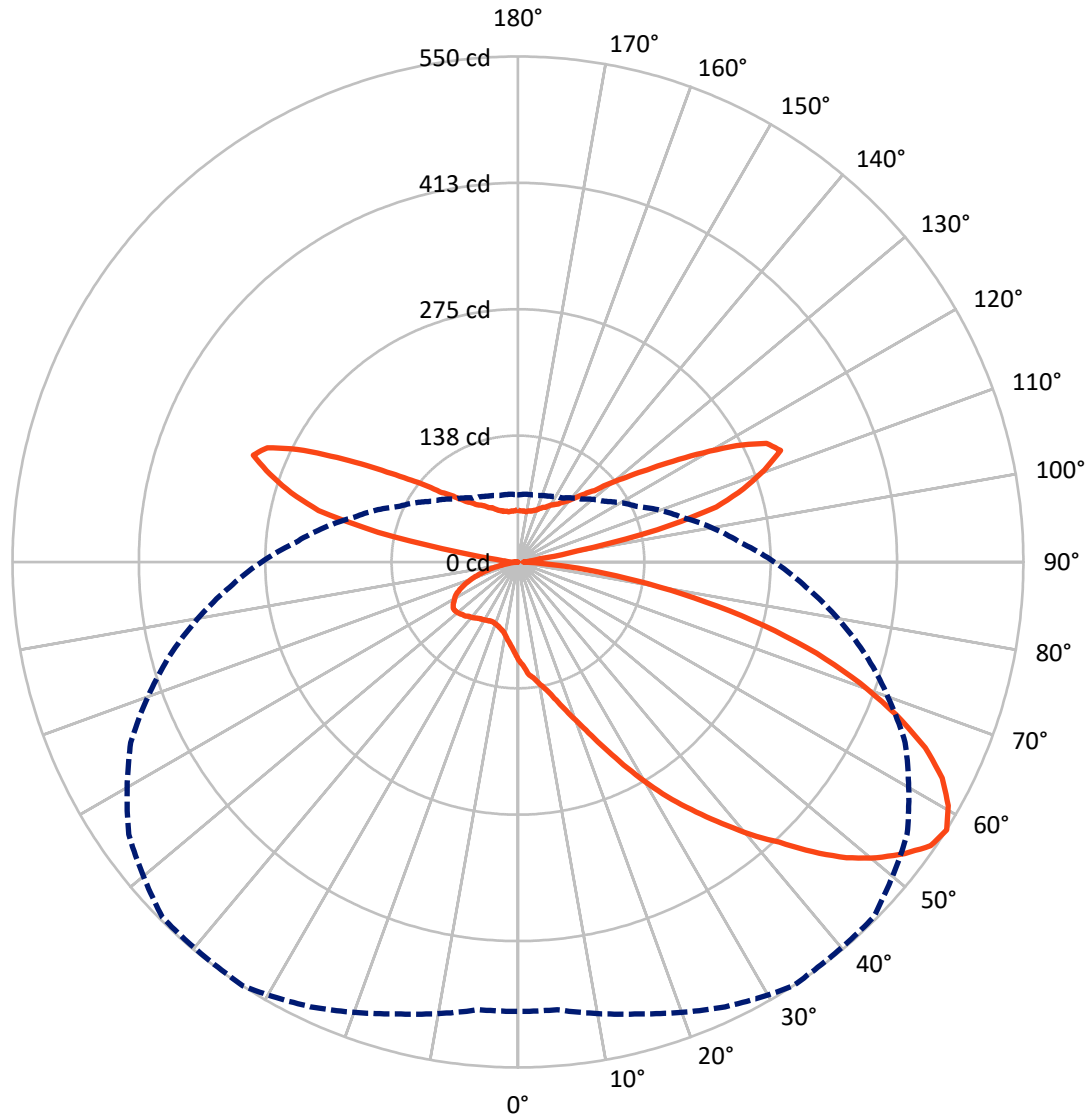
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.3 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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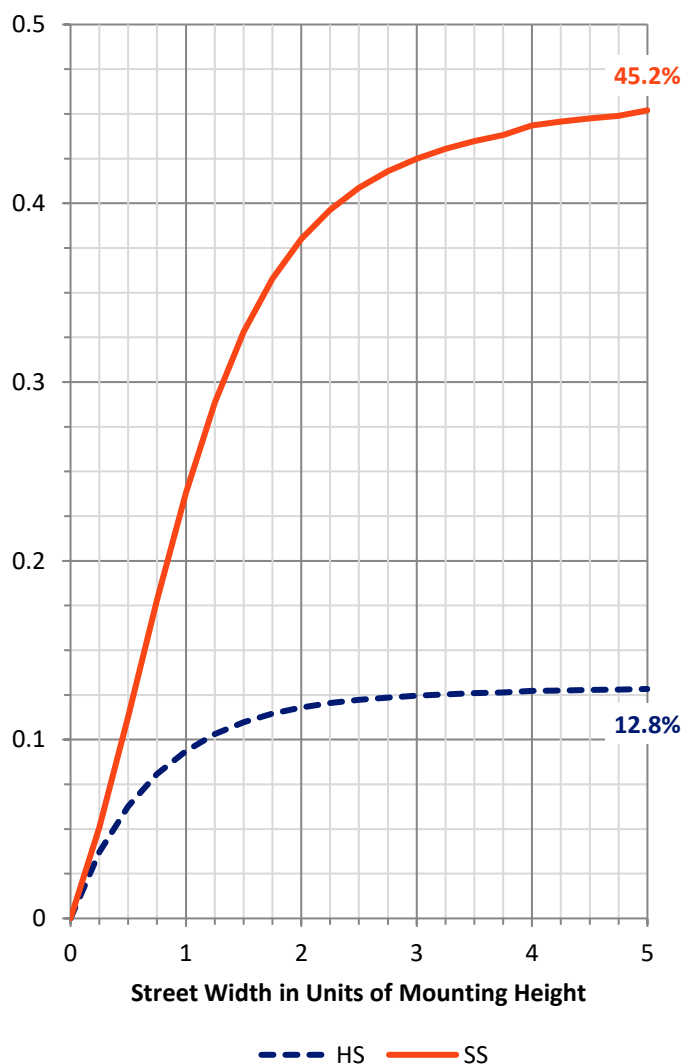
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	252.5	405.8	658.3
	% Fixture	12.9	20.8	33.7
Street Side	Lumens	890.5	405.8	1296.3
	% Fixture	45.6	20.8	66.3
Total	Lumens	1143.0	811.5	1954.6
	% Fixture	58.5	41.5	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	10.2	0.5
10°-20°	33.2	1.7
20°-30°	70.0	3.6
30°-40°	127.2	6.5
40°-50°	200.9	10.3
50°-60°	266.9	13.7
60°-70°	256.9	13.1
70°-80°	150.8	7.7
80°-90°	27.0	1.4
90°-100°	18.1	0.9
100°-110°	184.1	9.4
110°-120°	269.1	13.8
120°-130°	156.2	8.0
130°-140°	82.7	4.2
140°-150°	49.1	2.5
150°-160°	30.3	1.5
160°-170°	16.5	0.8
170°-180°	5.4	0.3
0°-90°	1143.0	58.5
0°-180°	1954.6	100.0

Coefficient of Utilization



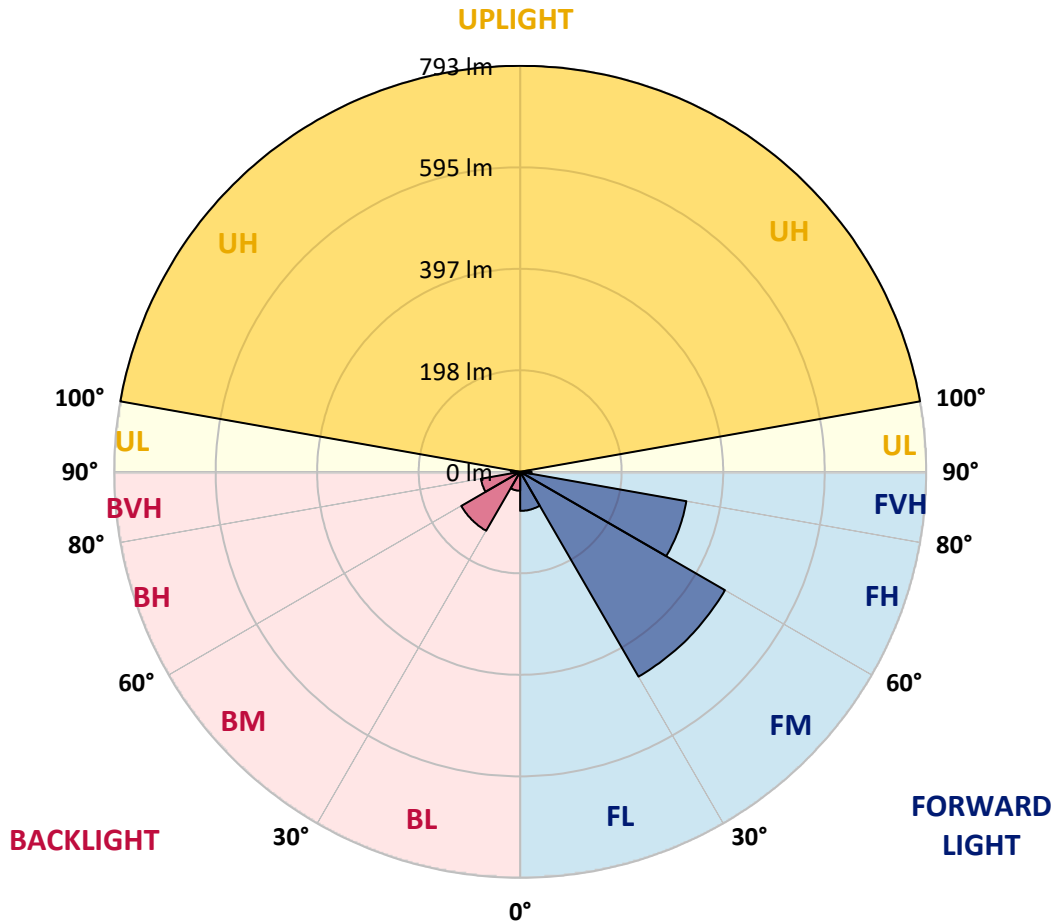
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	76.4	3.9			
FM (30°-60°)	462.0	23.6			
FH (60°-80°)	329.7	16.9			G0/660
FVH (80°-90°)	22.4	1.1			G1/100
BL (0°-30°)	37.1	1.9	B0/110		
BM (30°-60°)	133.0	6.8	B0/220		
BH (60°-80°)	77.9	4.0	B0/110		G0/110
BVH (80°-90°)	4.6	0.2			G0/10
UL (90°-100°)	18.1	0.9		U2/50	
UH (100°-180°)	793.4	40.6		U4/1000	

BUG Rating: B0-U4-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
0°	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
2.5°	114.0	115.0	114.0	114.0	113.0	113.0	112.0	111.0	110.0	109.0	107.0
5°	127.0	127.0	126.0	124.0	123.0	122.0	120.0	117.0	115.0	112.0	109.0
7.5°	133.0	133.0	132.0	130.0	128.0	127.0	124.0	120.0	117.0	113.0	109.0
10°	141.0	142.0	140.0	138.0	136.0	135.0	131.0	126.0	121.0	116.0	110.0
12.5°	150.0	151.0	150.0	147.0	144.0	143.0	139.0	133.0	127.0	120.0	113.0
15°	162.1	164.1	161.0	159.0	156.0	155.0	150.0	143.0	136.0	127.0	118.0
17.5°	176.1	177.1	175.1	172.1	170.1	169.1	164.1	156.0	146.0	136.0	125.0
20°	192.1	193.1	192.1	188.1	186.1	185.1	180.1	171.1	159.0	148.0	134.0
22.5°	211.1	213.1	210.1	207.1	205.1	205.1	199.1	189.1	175.1	161.0	145.0
25°	233.1	236.1	232.1	230.1	228.1	227.1	222.1	210.1	194.1	177.1	157.0
27.5°	260.1	262.1	259.1	258.1	254.1	254.1	246.1	232.1	215.1	195.1	172.1
30°	284.1	286.1	284.1	284.1	281.1	280.1	272.1	258.1	237.1	213.1	185.1
32.5°	307.1	309.1	308.1	309.1	308.1	307.1	297.1	282.1	261.1	230.1	198.1
35°	330.1	333.1	332.1	335.1	334.1	333.1	325.1	307.1	282.1	251.1	212.1
37.5°	354.1	357.1	357.1	360.1	361.1	361.1	352.1	333.1	305.1	270.1	228.1
40°	380.1	383.1	383.1	388.1	390.1	390.1	380.1	361.1	330.1	291.1	245.1
42.5°	405.1	408.1	409.1	414.1	417.1	418.1	410.1	388.1	352.1	312.1	261.1
45°	429.1	432.1	435.1	445.1	450.1	449.1	443.1	420.1	380.1	334.1	278.1
47.5°	452.1	456.1	461.1	474.1	481.1	480.1	476.1	450.1	406.1	355.1	293.1
50°	470.1	473.1	483.1	497.2	506.2	507.2	501.2	476.1	428.1	371.1	304.1
52.5°	484.1	488.2	500.2	520.2	527.2	530.2	523.2	498.2	450.1	385.1	313.1
55°	494.2	494.2	512.2	535.2	545.2	547.2	547.2	516.2	463.1	394.1	318.1
57.5°	489.2	489.2	509.2	534.2	550.2	549.2	547.2	517.2	465.1	392.1	315.1
60°	475.1	478.1	497.2	522.2	538.2	537.2	531.2	504.2	455.1	384.1	309.1
62.5°	456.1	461.1	481.1	500.2	518.2	521.2	513.2	489.2	438.1	372.1	298.1
65°	420.1	427.1	452.1	473.1	487.2	493.2	483.1	461.1	415.1	349.1	275.1
67.5°	380.1	385.1	406.1	436.1	444.1	450.1	445.1	422.1	383.1	312.1	249.1
70°	334.1	342.1	356.1	386.1	395.1	401.1	401.1	378.1	341.1	274.1	218.1
72.5°	280.1	289.1	306.1	328.1	340.1	344.1	343.1	324.1	291.1	232.1	184.1
75°	221.1	228.1	248.1	264.1	277.1	280.1	279.1	263.1	233.1	187.1	146.0
77.5°	163.1	170.1	185.1	197.1	209.1	207.1	207.1	195.1	176.1	139.0	111.0
80°	107.0	113.0	126.0	130.0	143.0	142.0	142.0	133.0	120.0	93.0	74.0
82.5°	59.0	64.0	73.0	77.0	85.0	83.0	84.0	78.0	70.0	52.0	42.0
85°	21.0	25.0	30.0	33.0	37.0	37.0	37.0	32.0	30.0	20.0	17.0
87.5°	1.0	2.0	4.0	4.0	6.0	6.0	6.0	4.0	4.0	1.0	1.0
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	10.8	11.1	9.7	11.1	8.3	8.3	6.9
95°	8.3	8.3	9.7	12.5	14.7	15.3	16.7	16.7	9.7	9.7	8.3
97.5°	11.1	12.5	12.5	15.3	23.1	25.0	45.8	27.8	13.9	13.9	12.5
100°	18.0	19.4	19.4	34.7	65.8	73.6	98.6	70.8	36.1	26.4	19.4
102.5°	58.3	61.1	75.0	112.5	155.8	166.6	151.3	127.7	120.8	83.3	66.6
105°	148.6	147.2	158.3	187.4	224.1	233.3	229.1	211.0	191.6	165.2	152.7
107.5°	195.8	195.8	205.5	230.5	258.3	265.2	309.6	313.8	248.5	218.0	204.1
110°	220.8	220.8	229.1	249.9	286.5	295.7	358.2	355.4	306.8	269.4	251.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
112.5°	226.3	227.7	238.8	270.7	310.7	320.7	348.5	336.0	316.6	299.9	286.0
115°	234.6	234.6	247.1	277.7	299.9	305.5	316.6	302.7	287.4	276.3	270.7
117.5°	231.9	236.0	238.8	255.5	269.9	273.5	281.8	274.9	254.1	245.8	243.0
120°	215.2	215.2	218.0	226.3	234.1	236.0	240.2	237.4	223.5	216.6	215.2
122.5°	191.6	193.0	191.6	195.8	201.3	202.7	206.9	204.1	193.0	190.2	190.2
125°	168.0	168.0	166.6	169.4	172.8	173.6	172.2	173.6	168.0	166.6	166.6
127.5°	151.3	149.9	147.2	148.6	149.6	149.9	149.9	151.3	145.8	147.2	148.6
130°	134.7	134.7	131.9	131.9	131.9	131.9	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	104.1	102.7	104.1	102.7	105.5	106.9
137.5°	97.2	97.2	94.4	94.4	94.4	94.4	93.0	94.4	94.4	95.8	98.6
140°	88.9	88.9	87.5	87.5	86.4	86.1	87.5	87.5	87.5	88.9	90.2
142.5°	84.7	83.3	81.9	80.5	81.6	81.9	81.9	81.9	80.5	81.9	84.7
145°	77.8	77.8	76.4	76.4	76.4	76.4	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	70.8	69.4	69.4	69.4	69.4	70.8
152.5°	68.0	68.0	66.6	68.0	66.9	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	60.0	59.7	59.7	59.7	61.1	61.1	61.1
162.5°	59.7	59.7	59.7	59.7	58.6	58.3	58.3	58.3	58.3	59.7	59.7
165°	59.7	58.3	58.3	58.3	57.2	56.9	56.9	56.9	56.9	58.3	59.7
167.5°	56.9	56.9	56.9	56.9	56.9	56.9	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	55.8	55.5	55.5	55.5	55.5	55.5	56.9
175°	56.9	56.9	56.9	56.9	55.8	55.5	55.5	55.5	56.9	56.9	56.9
177.5°	56.9	56.9	56.9	56.9	55.8	55.5	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°	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0
2.5°	106.0	105.0	104.0	102.0	101.0	100.0	99.0	98.0	98.0	98.0	98.0
5°	107.0	106.0	103.0	100.0	97.0	94.0	92.0	91.0	90.0	89.0	89.0
7.5°	107.0	105.0	101.0	97.0	94.0	90.0	87.0	84.0	82.0	81.0	81.0
10°	108.0	105.0	100.0	96.0	91.0	86.0	82.0	78.0	76.0	74.0	74.0
12.5°	110.0	107.0	100.0	95.0	89.0	83.0	78.0	74.0	71.0	69.0	69.0
15°	114.0	110.0	102.0	95.0	88.0	81.0	76.0	71.0	68.0	66.0	66.0
17.5°	120.0	115.0	105.0	95.0	87.0	80.0	74.0	69.0	65.0	63.0	63.0
20°	127.0	121.0	109.0	97.0	87.0	79.0	73.0	67.0	63.0	61.0	61.0
22.5°	137.0	128.0	114.0	100.0	89.0	80.0	72.0	66.0	62.0	60.0	60.0
25°	148.0	138.0	120.0	104.0	91.0	80.0	72.0	66.0	62.0	60.0	59.0
27.5°	160.0	149.0	127.0	108.0	93.0	82.0	73.0	66.0	62.0	60.0	60.0
30°	171.1	158.0	134.0	113.0	96.0	83.0	74.0	67.0	62.0	60.0	60.0
32.5°	183.1	168.1	141.0	118.0	99.0	85.0	75.0	68.0	63.0	61.0	60.0
35°	195.1	178.1	148.0	122.0	102.0	87.0	76.0	69.0	64.0	62.0	62.0
37.5°	208.1	189.1	155.0	127.0	105.0	89.0	78.0	70.0	65.0	63.0	63.0
40°	222.1	200.1	162.1	131.0	108.0	91.0	80.0	72.0	67.0	65.0	65.0
42.5°	236.1	212.1	170.1	136.0	111.0	93.0	81.0	74.0	69.0	67.0	67.0
45°	250.1	222.1	177.1	141.0	114.0	96.0	84.0	76.0	71.0	69.0	69.0
47.5°	263.1	233.1	183.1	144.0	117.0	98.0	85.0	78.0	73.0	72.0	71.0
50°	272.1	240.1	187.1	147.0	118.0	99.0	87.0	79.0	75.0	73.0	73.0
52.5°	279.1	247.1	190.1	149.0	119.0	100.0	88.0	81.0	77.0	75.0	74.0
55°	283.1	248.1	190.1	147.0	118.0	100.0	88.0	81.0	77.0	75.0	75.0
57.5°	279.1	243.1	186.1	143.0	115.0	97.0	85.0	79.0	75.0	74.0	73.0
60°	271.1	235.1	178.1	137.0	110.0	92.0	81.0	76.0	73.0	72.0	71.0
62.5°	260.1	225.1	170.1	129.0	103.0	86.0	78.0	72.0	70.0	69.0	68.0
65°	238.1	206.1	157.0	119.0	94.0	79.0	71.0	67.0	65.0	63.0	62.0
67.5°	214.1	185.1	139.0	107.0	83.0	71.0	64.0	60.0	57.0	57.0	56.0
70°	188.1	163.1	120.0	91.0	72.0	62.0	55.0	52.0	50.0	50.0	49.0
72.5°	157.0	137.0	100.0	74.0	59.0	51.0	46.0	43.0	42.0	42.0	41.0
75°	126.0	108.0	79.0	58.0	46.0	40.0	36.0	34.0	33.0	33.0	32.0
77.5°	93.0	79.0	57.0	42.0	33.0	29.0	26.0	25.0	24.0	24.0	23.0
80°	62.0	52.0	37.0	27.0	20.0	18.0	16.0	16.0	15.0	16.0	15.0
82.5°	34.0	28.0	20.0	14.0	10.0	9.0	8.0	8.0	9.0	9.0	8.0
85°	13.0	10.0	7.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
87.5°	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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-D0-740-U-DL-CG-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

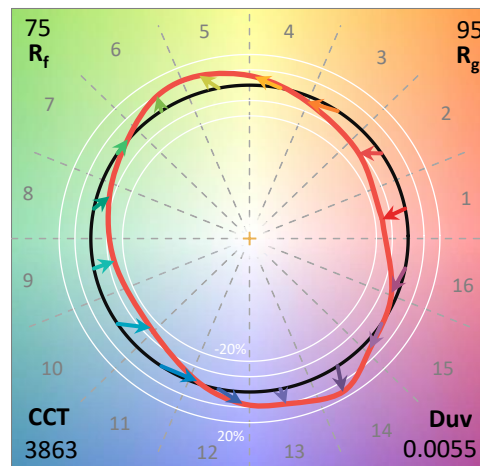
Test Information

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

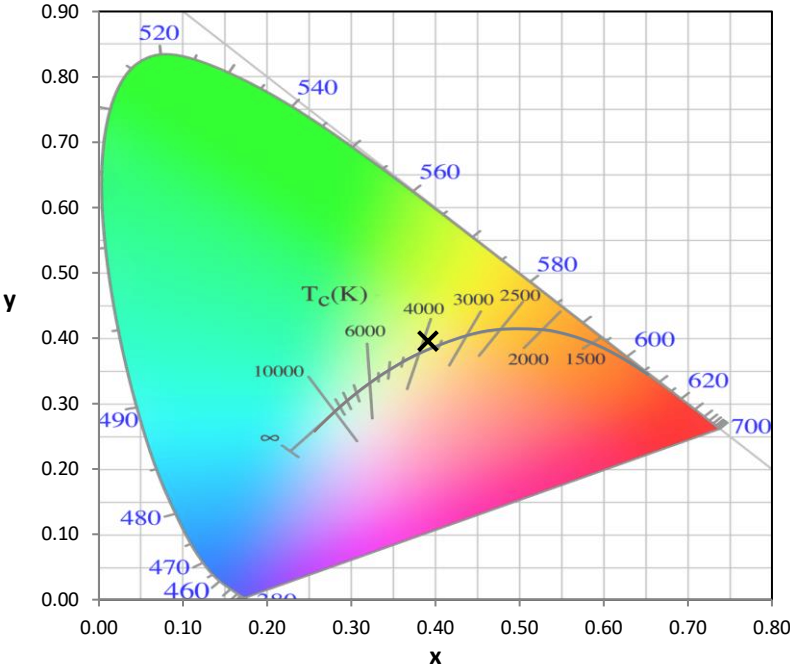
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-2

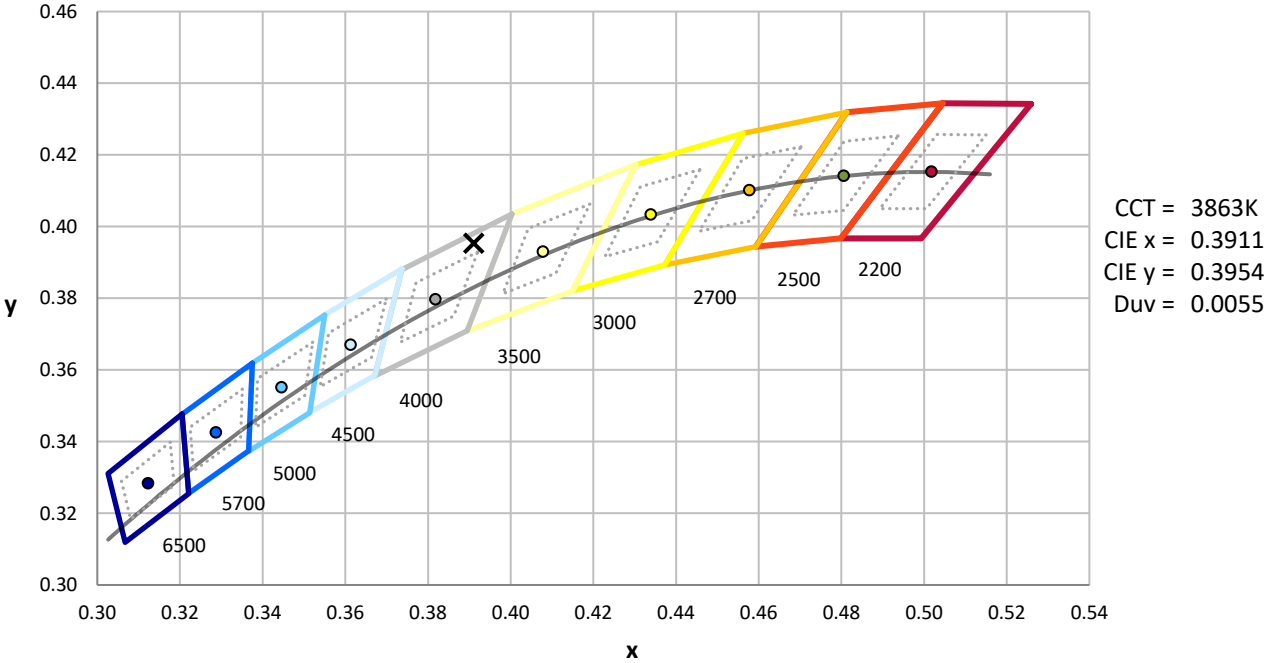
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



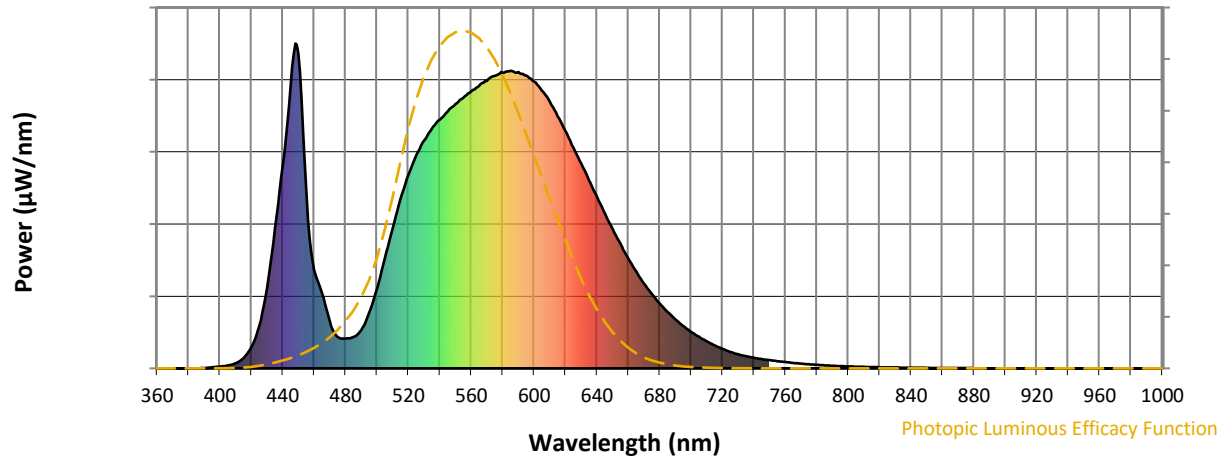
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2411-284-2

Photopic Flux vs. Wavelength

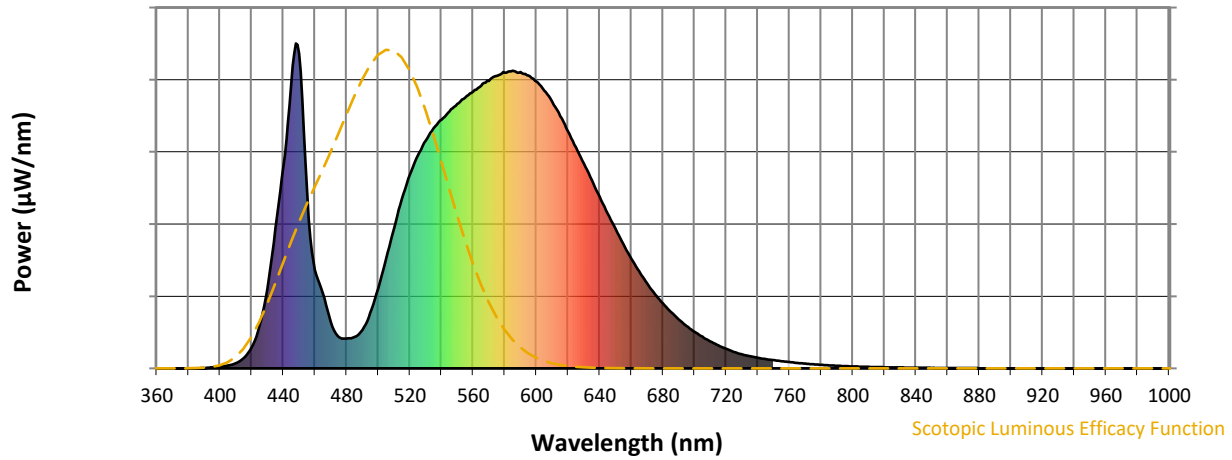


Photopic Lumens: NR

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



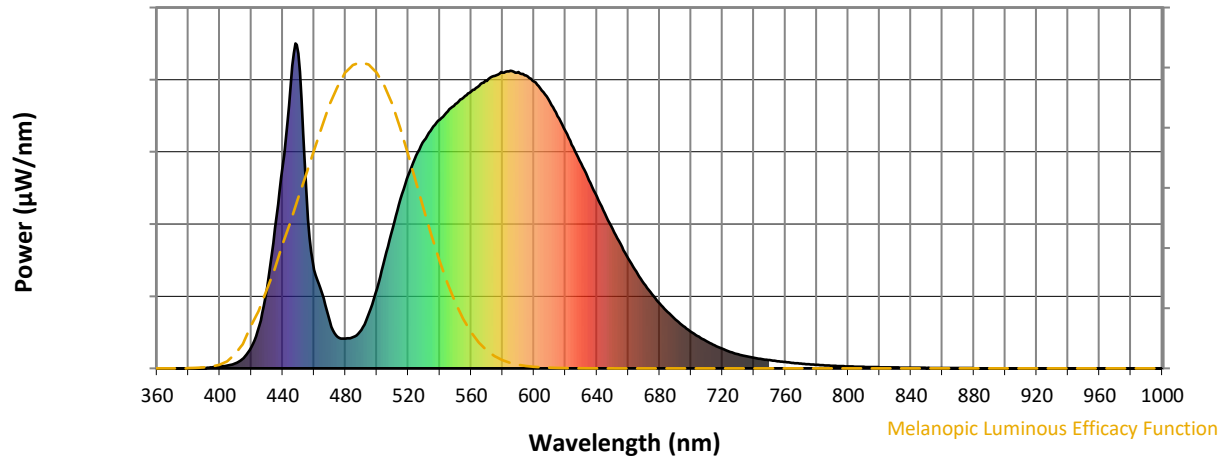
Scotopic Lumens: NR

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



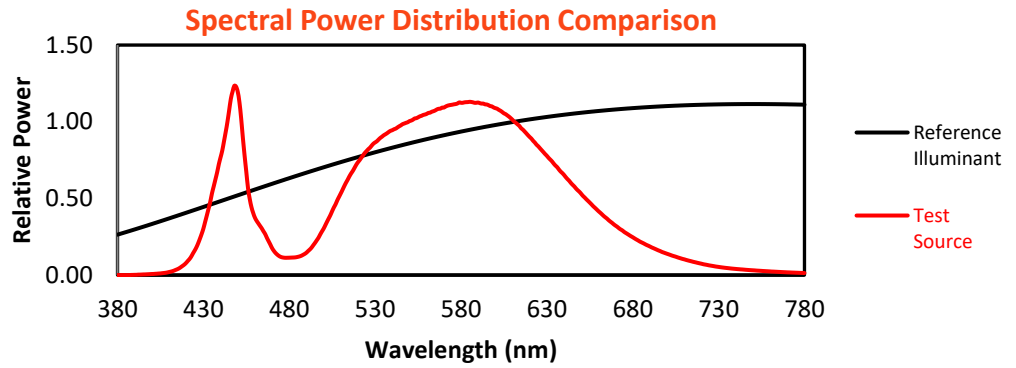
Melanopic Lumens: NR

M/P: 2.72

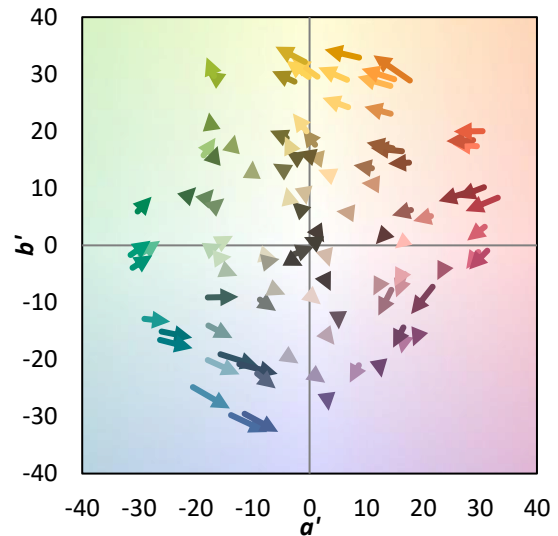
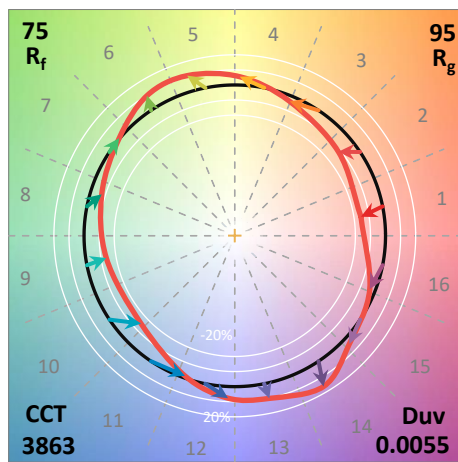
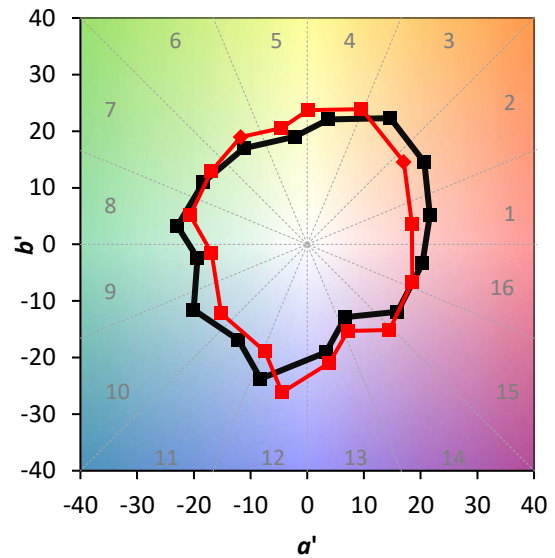
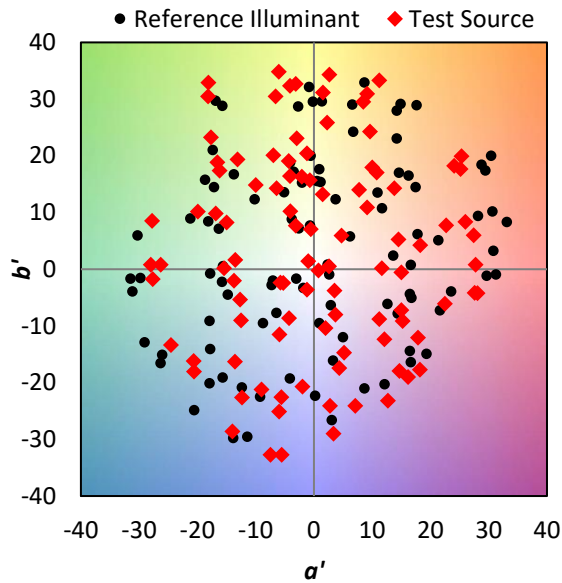
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	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

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

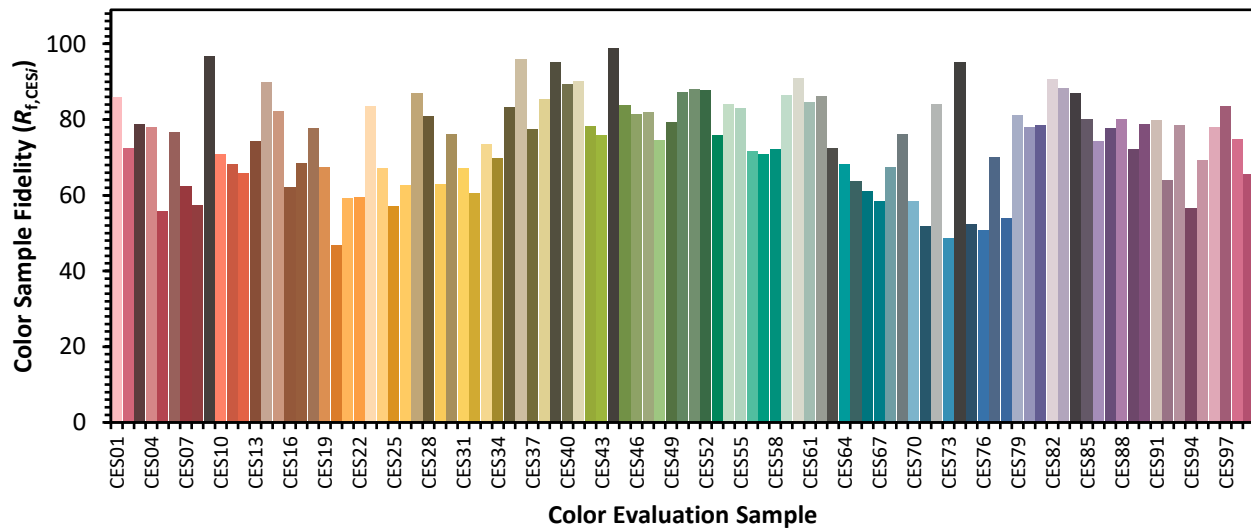


Color Vector Graphics

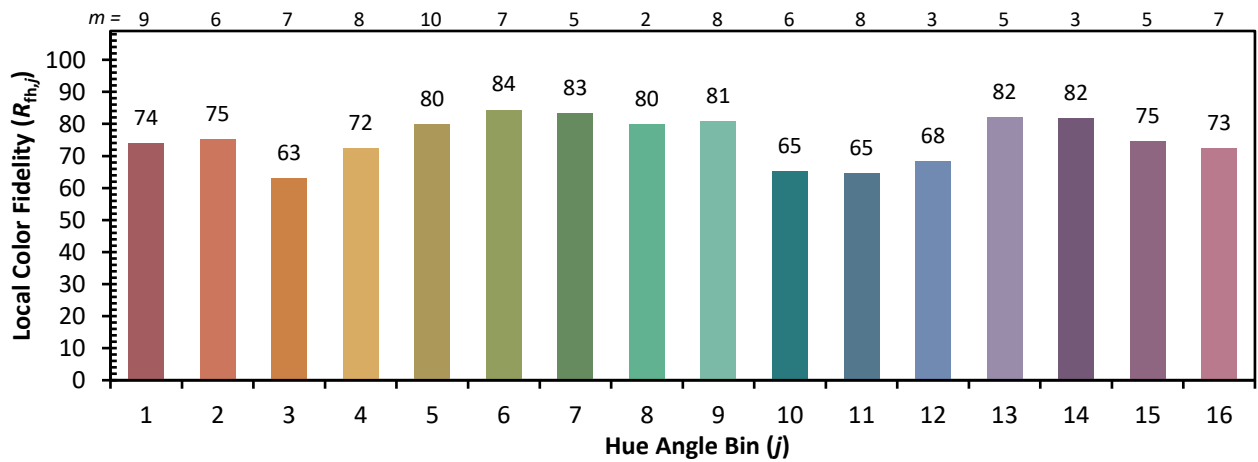
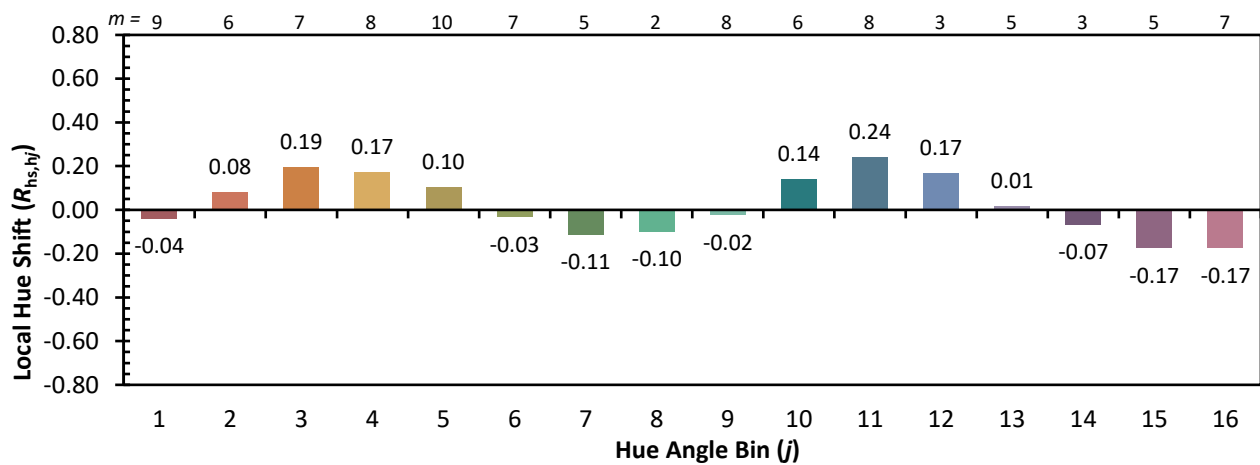
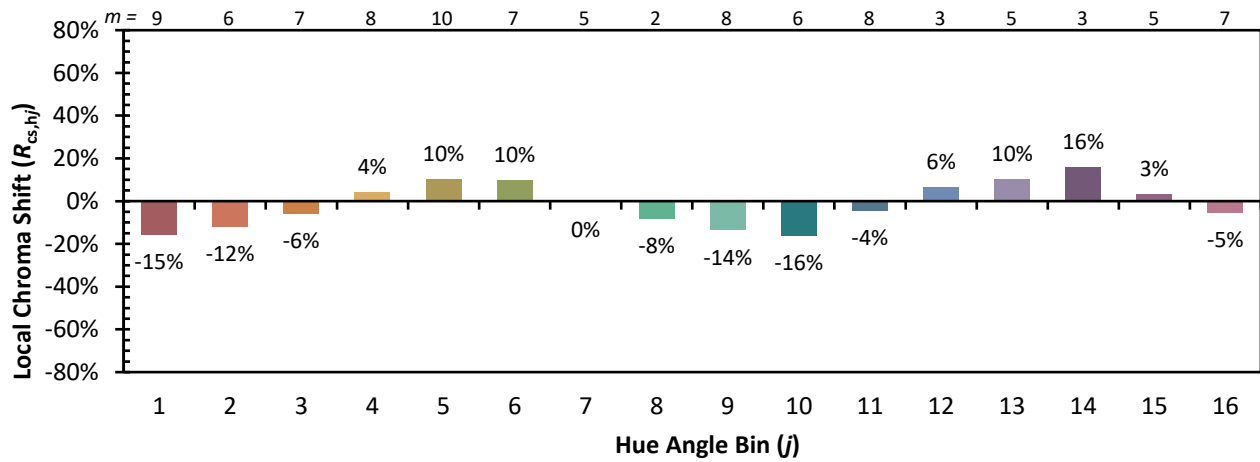


Individual Sample Fidelity Index ($R_{f,i}$)

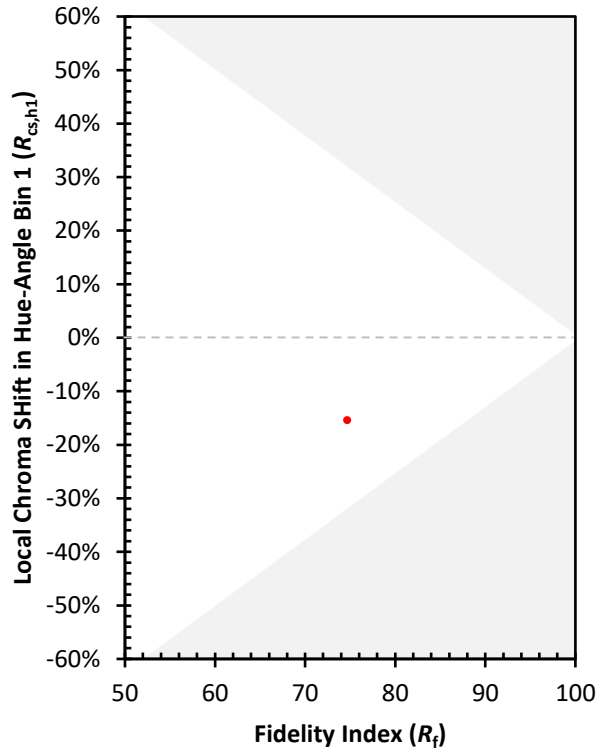
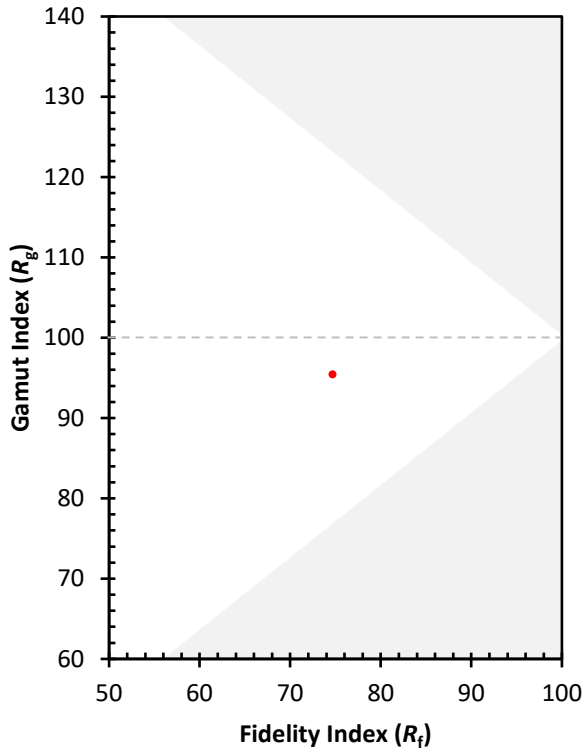
CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 51
CES02 = 61	CES27 = 87	CES52 = 88	CES77 = 70
CES03 = 30	CES28 = 81	CES53 = 76	CES78 = 54
CES04 = 70	CES29 = 63	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 76	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 67	CES56 = 72	CES81 = 79
CES07 = 40	CES32 = 61	CES57 = 71	CES82 = 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)