

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: P832805

Luminaire Tested: **TTN-D0-735-U-DL-CG-UPL2**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P832805
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-D0-735-U-DL-CG-UPL2
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1626.8 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: B0 - U4 - G1

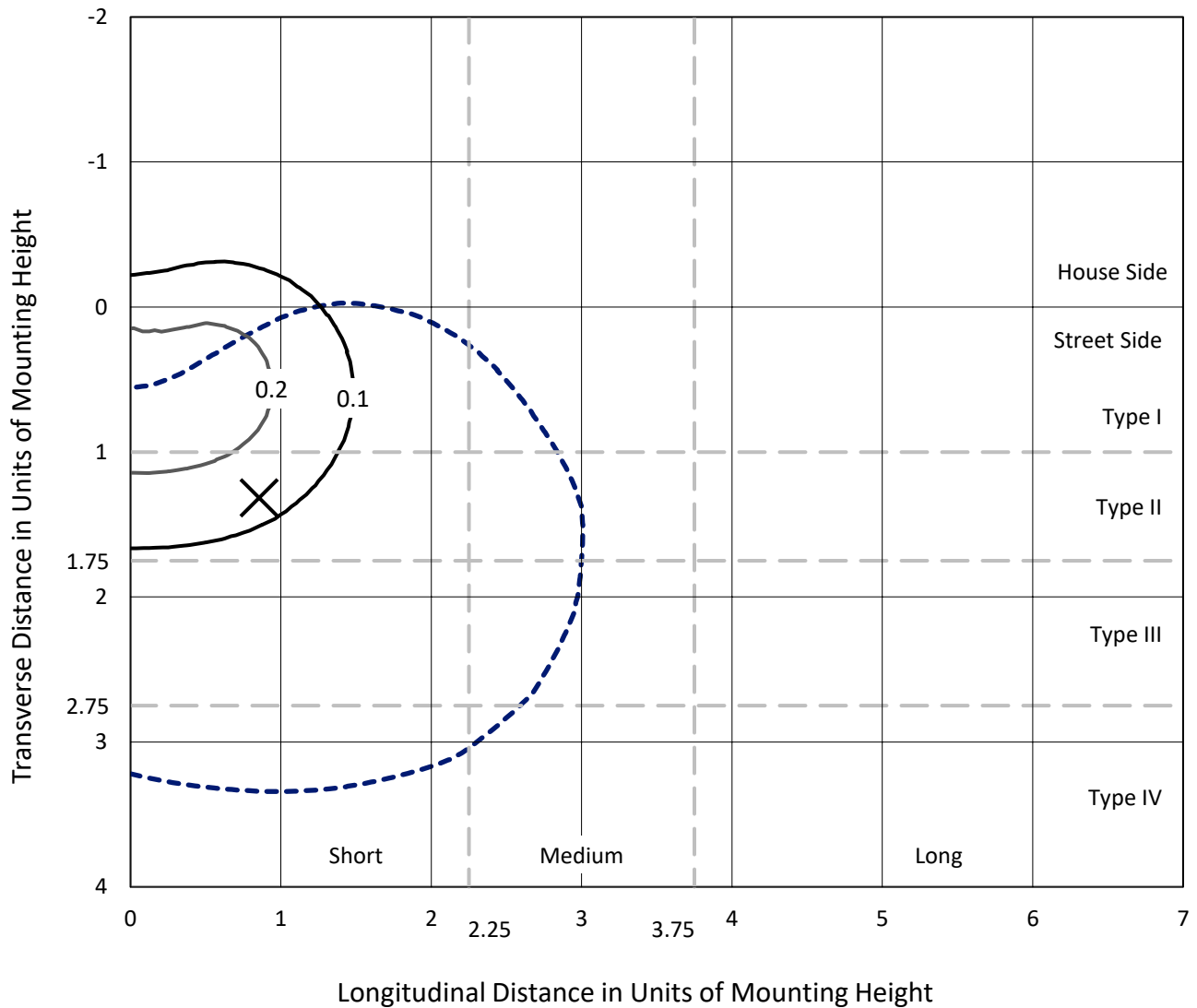
Input Watts (W): 15.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

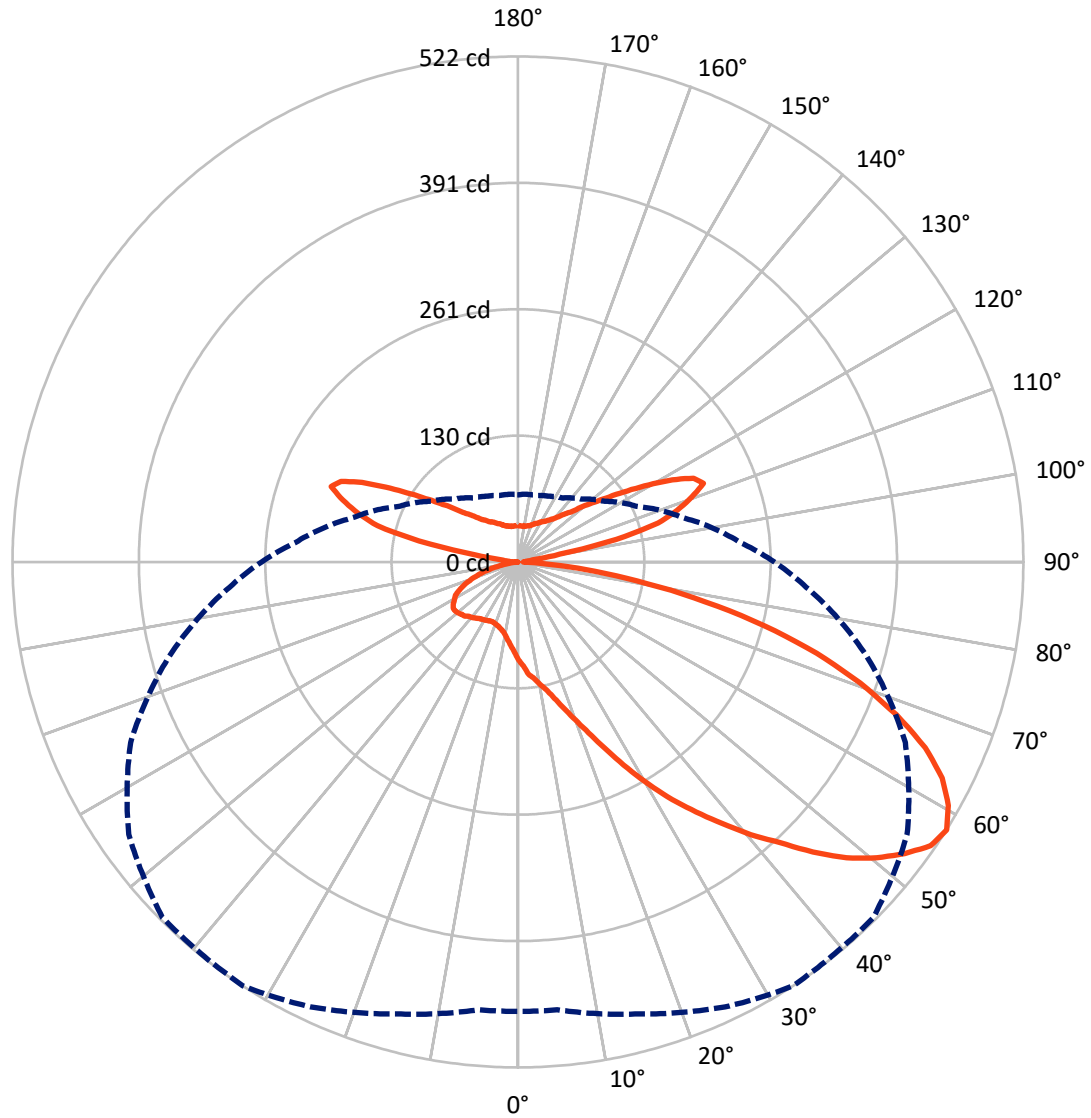
× Max cd
 - - - 1/2 Max cd



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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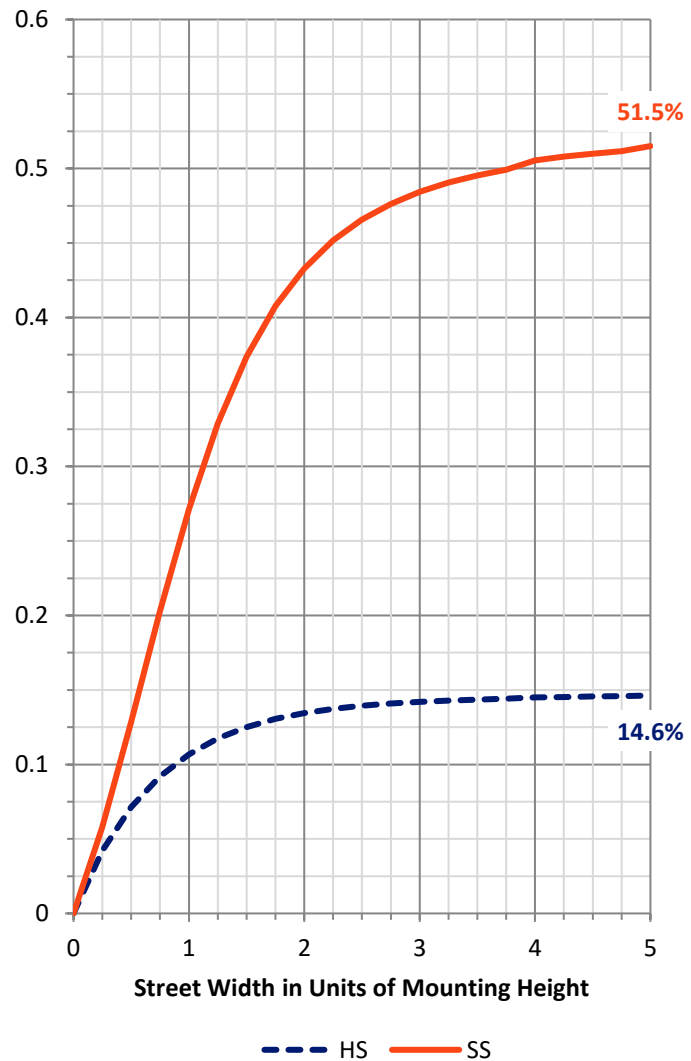
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	239.3	271.5	510.8
	% Fixture	14.7	16.7	31.4
Street Side	Lumens	844.4	271.5	1115.9
	% Fixture	51.9	16.7	68.6
Total	Lumens	1083.7	543.0	1626.8
	% Fixture	66.6	33.4	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.7	0.6
10°-20°	31.5	1.9
20°-30°	66.4	4.1
30°-40°	120.6	7.4
40°-50°	190.6	11.7
50°-60°	253.1	15.6
60°-70°	243.6	15.0
70°-80°	143.0	8.8
80°-90°	25.3	1.6
90°-100°	12.1	0.7
100°-110°	123.2	7.6
110°-120°	180.1	11.1
120°-130°	104.5	6.4
130°-140°	55.4	3.4
140°-150°	32.9	2.0
150°-160°	20.2	1.2
160°-170°	11.0	0.7
170°-180°	3.6	0.2
0°-90°	1083.7	66.6
0°-180°	1626.8	100.0

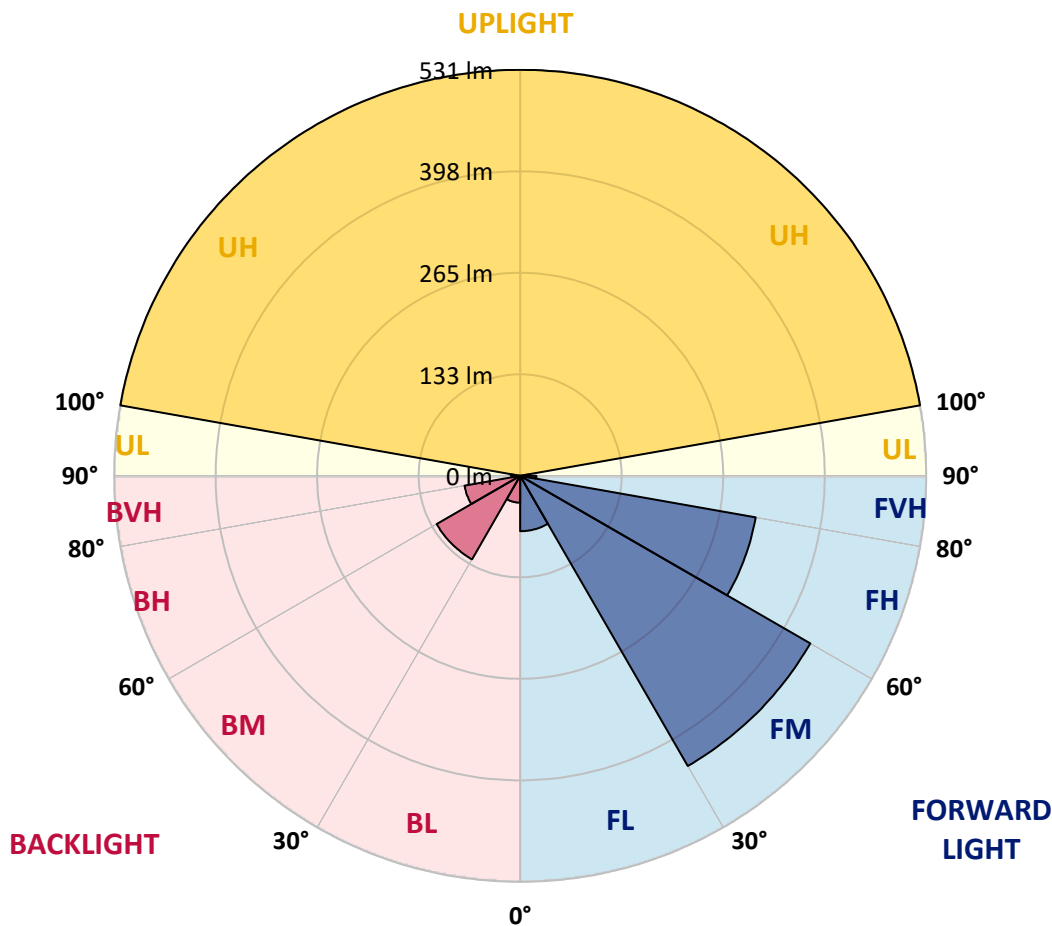


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	72.5	4.5			
FM (30°-60°)	438.1	26.9			
FH (60°-80°)	312.7	19.2			G0/660
FVH (80°-90°)	21.1	1.3			G1/100
BL (0°-30°)	35.2	2.2	B0/110		
BM (30°-60°)	126.1	7.8	B0/220		
BH (60°-80°)	73.9	4.5	B0/110		G0/110
BVH (80°-90°)	4.2	0.3			G0/10
UL (90°-100°)	12.1	0.7		U2/50	
UH (100°-180°)	530.9	32.6		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°	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5
2.5°	108.1	109.1	108.1	108.1	107.2	107.2	106.2	105.3	104.3	103.4	101.5
5°	120.5	120.5	119.5	117.6	116.7	115.7	113.8	111.0	109.1	106.2	103.4
7.5°	126.2	126.2	125.2	123.3	121.4	120.5	117.6	113.8	111.0	107.2	103.4
10°	133.8	134.7	132.8	130.9	129.0	128.1	124.3	119.5	114.8	110.0	104.3
12.5°	142.3	143.2	142.3	139.4	136.6	135.7	131.9	126.2	120.5	113.8	107.2
15°	153.7	155.6	152.7	150.8	148.0	147.0	142.3	135.7	129.0	120.5	111.9
17.5°	167.0	167.9	166.0	163.2	161.3	160.3	155.6	148.0	138.5	129.0	118.6
20°	182.1	183.1	182.1	178.3	176.4	175.5	170.8	162.2	150.8	140.4	127.1
22.5°	200.2	202.1	199.2	196.4	194.5	194.5	188.8	179.3	166.0	152.7	137.6
25°	221.0	223.9	220.1	218.2	216.3	215.3	210.6	199.2	184.0	167.9	148.9
27.5°	246.6	248.5	245.7	244.7	241.0	241.0	233.4	220.1	204.0	185.0	163.2
30°	269.4	271.3	269.4	269.4	266.6	265.6	258.0	244.7	224.8	202.1	175.5
32.5°	291.2	293.1	292.2	293.1	292.2	291.2	281.7	267.5	247.6	218.2	187.8
35°	313.0	315.9	314.9	317.8	316.8	315.9	308.3	291.2	267.5	238.1	201.1
37.5°	335.8	338.7	338.7	341.5	342.5	342.5	333.9	315.9	289.3	256.1	216.3
40°	360.5	363.3	363.3	368.1	370.0	370.0	360.5	342.5	313.0	276.1	232.4
42.5°	384.2	387.0	388.0	392.7	395.6	396.5	388.9	368.1	333.9	296.0	247.6
45°	407.0	409.8	412.7	422.1	426.9	425.9	420.2	398.4	360.5	316.8	263.7
47.5°	428.8	432.6	437.3	449.7	456.3	455.3	451.5	426.9	385.1	336.8	277.9
50°	445.9	448.7	458.2	471.5	480.0	481.0	475.3	451.5	406.0	351.9	288.4
52.5°	459.1	462.9	474.3	493.3	499.9	502.8	496.1	472.4	426.9	365.2	296.9
55°	468.6	468.6	485.7	507.5	517.0	518.9	518.9	489.5	439.2	373.8	301.7
57.5°	463.9	463.9	482.9	506.6	521.7	520.8	518.9	490.4	441.1	371.9	298.8
60°	450.6	453.4	471.5	495.2	510.4	509.4	503.7	478.1	431.6	364.3	293.1
62.5°	432.6	437.3	456.3	474.3	491.4	494.2	486.6	463.9	415.5	352.9	282.7
65°	398.4	405.1	428.8	448.7	462.0	467.7	458.2	437.3	393.7	331.1	260.9
67.5°	360.5	365.2	385.1	413.6	421.2	426.9	422.1	400.3	363.3	296.0	236.2
70°	316.8	324.4	337.7	366.2	374.7	380.4	380.4	358.6	323.5	259.9	206.8
72.5°	265.6	274.2	290.3	311.2	322.5	326.3	325.4	307.4	276.1	220.1	174.5
75°	209.6	216.3	235.3	250.4	262.8	265.6	264.7	249.5	221.0	177.4	138.5
77.5°	154.6	161.3	175.5	186.9	198.3	196.4	196.4	185.0	167.0	131.9	105.3
80°	101.5	107.2	119.5	123.3	135.7	134.7	134.7	126.2	113.8	88.2	70.2
82.5°	56.0	60.7	69.2	73.0	80.6	78.7	79.7	74.0	66.4	49.3	39.8
85°	19.9	23.7	28.5	31.3	35.1	35.1	35.1	30.4	28.5	19.0	16.1
87.5°	0.9	1.9	3.8	3.8	5.7	5.7	5.7	3.8	3.8	0.9	0.9
90°	4.6	4.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	4.6
92.5°	4.6	4.6	4.6	6.5	7.2	7.4	6.5	7.4	5.6	5.6	4.6
95°	5.6	5.6	6.5	8.4	9.8	10.2	11.1	11.1	6.5	6.5	5.6
97.5°	7.4	8.4	8.4	10.2	15.4	16.7	30.7	18.6	9.3	9.3	8.4
100°	12.1	13.0	13.0	23.2	44.0	49.2	66.0	47.4	24.2	17.7	13.0
102.5°	39.0	40.9	50.2	75.3	104.3	111.5	101.3	85.5	80.8	55.7	44.6
105°	99.4	98.5	105.9	125.4	150.0	156.1	153.3	141.2	128.2	110.6	102.2
107.5°	131.0	131.0	137.5	154.2	172.8	177.4	207.2	210.0	166.3	145.9	136.6
110°	147.7	147.7	153.3	167.2	191.8	197.9	239.7	237.8	205.3	180.2	168.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
112.5°	151.4	152.4	159.8	181.2	207.9	214.6	233.2	224.8	211.8	200.7	191.4
115°	157.0	157.0	165.4	185.8	200.7	204.4	211.8	202.5	192.3	184.9	181.2
117.5°	155.1	157.9	159.8	170.9	180.6	183.0	188.6	183.9	170.0	164.4	162.6
120°	144.0	144.0	145.9	151.4	156.6	157.9	160.7	158.9	149.6	144.9	144.0
122.5°	128.2	129.1	128.2	131.0	134.7	135.6	138.4	136.6	129.1	127.3	127.3
125°	112.4	112.4	111.5	113.3	115.5	116.1	115.2	116.1	112.4	111.5	111.5
127.5°	101.3	100.3	98.5	99.4	100.1	100.3	100.3	101.3	97.5	98.5	99.4
130°	90.1	90.1	88.3	88.3	88.3	88.3	86.4	88.3	86.4	87.3	88.3
132.5°	79.9	79.9	77.1	76.2	76.2	76.2	76.2	77.1	76.2	78.0	79.9
135°	71.5	71.5	68.7	69.7	69.7	69.7	68.7	69.7	68.7	70.6	71.5
137.5°	65.0	65.0	63.2	63.2	63.2	63.2	62.2	63.2	63.2	64.1	66.0
140°	59.5	59.5	58.5	58.5	57.8	57.6	58.5	58.5	58.5	59.5	60.4
142.5°	56.7	55.7	54.8	53.9	54.6	54.8	54.8	54.8	53.9	54.8	56.7
145°	52.0	52.0	51.1	51.1	51.1	51.1	52.0	51.1	51.1	52.0	52.0
147.5°	49.2	49.2	48.3	49.2	49.2	49.2	49.2	49.2	48.3	49.2	49.2
150°	48.3	47.4	46.5	47.4	47.4	47.4	46.5	46.5	46.5	46.5	47.4
152.5°	45.5	45.5	44.6	45.5	44.8	44.6	44.6	44.6	44.6	44.6	45.5
155°	43.7	43.7	42.7	43.7	43.7	43.7	43.7	43.7	43.7	43.7	43.7
157.5°	41.8	42.7	41.8	41.8	41.8	41.8	41.8	41.8	41.8	41.8	42.7
160°	40.9	40.9	40.9	40.9	40.1	39.9	39.9	39.9	40.9	40.9	40.9
162.5°	39.9	39.9	39.9	39.9	39.2	39.0	39.0	39.0	39.0	39.9	39.9
165°	39.9	39.0	39.0	39.0	38.3	38.1	38.1	38.1	38.1	39.0	39.9
167.5°	38.1	38.1	38.1	38.1	38.1	38.1	37.2	37.2	38.1	38.1	38.1
170°	38.1	38.1	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2
172.5°	38.1	38.1	38.1	38.1	37.4	37.2	37.2	37.2	37.2	37.2	38.1
175°	38.1	38.1	38.1	38.1	37.4	37.2	37.2	37.2	38.1	38.1	38.1
177.5°	38.1	38.1	38.1	38.1	37.4	37.2	38.1	38.1	38.1	38.1	38.1
180°	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5
2.5°	100.6	99.6	98.7	96.8	95.8	94.9	93.9	93.0	93.0	93.0	93.0
5°	101.5	100.6	97.7	94.9	92.0	89.2	87.3	86.3	85.4	84.4	84.4
7.5°	101.5	99.6	95.8	92.0	89.2	85.4	82.5	79.7	77.8	76.8	76.8
10°	102.5	99.6	94.9	91.1	86.3	81.6	77.8	74.0	72.1	70.2	70.2
12.5°	104.3	101.5	94.9	90.1	84.4	78.7	74.0	70.2	67.4	65.5	65.5
15°	108.1	104.3	96.8	90.1	83.5	76.8	72.1	67.4	64.5	62.6	62.6
17.5°	113.8	109.1	99.6	90.1	82.5	75.9	70.2	65.5	61.7	59.8	59.8
20°	120.5	114.8	103.4	92.0	82.5	74.9	69.2	63.6	59.8	57.9	57.9
22.5°	130.0	121.4	108.1	94.9	84.4	75.9	68.3	62.6	58.8	56.9	56.9
25°	140.4	130.9	113.8	98.7	86.3	75.9	68.3	62.6	58.8	56.9	56.0
27.5°	151.8	141.3	120.5	102.5	88.2	77.8	69.2	62.6	58.8	56.9	56.9
30°	162.2	149.9	127.1	107.2	91.1	78.7	70.2	63.6	58.8	56.9	56.9
32.5°	173.6	159.4	133.8	111.9	93.9	80.6	71.1	64.5	59.8	57.9	56.9
35°	185.0	168.9	140.4	115.7	96.8	82.5	72.1	65.5	60.7	58.8	58.8
37.5°	197.3	179.3	147.0	120.5	99.6	84.4	74.0	66.4	61.7	59.8	59.8
40°	210.6	189.7	153.7	124.3	102.5	86.3	75.9	68.3	63.6	61.7	61.7
42.5°	223.9	201.1	161.3	129.0	105.3	88.2	76.8	70.2	65.5	63.6	63.6
45°	237.2	210.6	167.9	133.8	108.1	91.1	79.7	72.1	67.4	65.5	65.5
47.5°	249.5	221.0	173.6	136.6	111.0	93.0	80.6	74.0	69.2	68.3	67.4
50°	258.0	227.7	177.4	139.4	111.9	93.9	82.5	74.9	71.1	69.2	69.2
52.5°	264.7	234.3	180.2	141.3	112.9	94.9	83.5	76.8	73.0	71.1	70.2
55°	268.5	235.3	180.2	139.4	111.9	94.9	83.5	76.8	73.0	71.1	71.1
57.5°	264.7	230.5	176.4	135.7	109.1	92.0	80.6	74.9	71.1	70.2	69.2
60°	257.1	222.9	168.9	130.0	104.3	87.3	76.8	72.1	69.2	68.3	67.4
62.5°	246.6	213.4	161.3	122.4	97.7	81.6	74.0	68.3	66.4	65.5	64.5
65°	225.8	195.4	148.9	112.9	89.2	74.9	67.4	63.6	61.7	59.8	58.8
67.5°	203.0	175.5	131.9	101.5	78.7	67.4	60.7	56.9	54.1	54.1	53.1
70°	178.3	154.6	113.8	86.3	68.3	58.8	52.2	49.3	47.4	47.4	46.5
72.5°	148.9	130.0	94.9	70.2	56.0	48.4	43.6	40.8	39.8	39.8	38.9
75°	119.5	102.5	74.9	55.0	43.6	37.9	34.2	32.3	31.3	31.3	30.4
77.5°	88.2	74.9	54.1	39.8	31.3	27.5	24.7	23.7	22.8	22.8	21.8
80°	58.8	49.3	35.1	25.6	19.0	17.1	15.2	15.2	14.2	15.2	14.2
82.5°	32.3	26.6	19.0	13.3	9.5	8.5	7.6	7.6	8.5	8.5	7.6
85°	12.3	9.5	6.6	3.8	2.8	2.8	2.8	2.8	2.8	2.8	1.9
87.5°	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	4.6	4.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	4.6	4.6
92.5°	4.6	4.6	5.6	5.6	7.4	6.5	7.4	6.5	4.6	4.6	4.6
95°	5.6	5.6	6.5	6.5	11.1	11.1	10.2	8.4	6.5	5.6	5.6
97.5°	7.4	8.4	9.3	9.3	18.6	30.7	16.7	10.2	8.4	8.4	7.4
100°	13.0	13.0	17.7	24.2	47.4	66.0	49.2	23.2	13.0	13.0	12.1
102.5°	42.7	44.6	55.7	80.8	85.5	101.3	111.5	75.3	50.2	40.9	39.0
105°	102.2	102.2	110.6	128.2	141.2	153.3	156.1	125.4	105.9	98.5	99.4
107.5°	135.6	136.6	145.9	166.3	210.0	207.2	177.4	154.2	137.5	131.0	131.0
110°	166.3	168.2	180.2	205.3	237.8	239.7	197.9	167.2	153.3	147.7	147.7



REPORT NUMBER: P832805
 CATALOG NUMBER: TTN-D0-735-U-DL-CG-UPL2

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	189.5	191.4	200.7	211.8	224.8	233.2	214.6	181.2	159.8	152.4	151.4
115°	183.0	181.2	184.9	192.3	202.5	211.8	204.4	185.8	165.4	157.0	157.0
117.5°	159.8	162.6	164.4	170.0	183.9	188.6	183.0	170.9	159.8	157.9	155.1
120°	142.1	144.0	144.9	149.6	158.9	160.7	157.9	151.4	145.9	144.0	144.0
122.5°	125.4	127.3	127.3	129.1	136.6	138.4	135.6	131.0	128.2	129.1	128.2
125°	110.6	111.5	111.5	112.4	116.1	115.2	116.1	113.3	111.5	112.4	112.4
127.5°	98.5	99.4	98.5	97.5	101.3	100.3	100.3	99.4	98.5	100.3	101.3
130°	89.2	88.3	87.3	86.4	88.3	86.4	88.3	88.3	88.3	90.1	90.1
132.5°	79.9	79.9	78.0	76.2	77.1	76.2	76.2	76.2	77.1	79.9	79.9
135°	71.5	71.5	70.6	68.7	69.7	68.7	69.7	69.7	68.7	71.5	71.5
137.5°	66.9	66.0	64.1	63.2	63.2	62.2	63.2	63.2	63.2	65.0	65.0
140°	60.4	60.4	59.5	58.5	58.5	58.5	57.6	58.5	58.5	59.5	59.5
142.5°	56.7	56.7	54.8	53.9	54.8	54.8	54.8	53.9	54.8	55.7	56.7
145°	53.0	52.0	52.0	51.1	51.1	52.0	51.1	51.1	51.1	52.0	52.0
147.5°	50.2	49.2	49.2	48.3	49.2	49.2	49.2	49.2	48.3	49.2	49.2
150°	47.4	47.4	46.5	46.5	46.5	46.5	47.4	47.4	46.5	47.4	48.3
152.5°	46.5	45.5	44.6	44.6	44.6	44.6	44.6	45.5	44.6	45.5	45.5
155°	43.7	43.7	43.7	43.7	43.7	43.7	43.7	43.7	42.7	43.7	43.7
157.5°	42.7	42.7	41.8	41.8	41.8	41.8	41.8	41.8	41.8	42.7	41.8
160°	41.8	40.9	40.9	40.9	39.9	39.9	39.9	40.9	40.9	40.9	40.9
162.5°	40.9	39.9	39.9	39.0	39.0	39.0	39.0	39.9	39.9	39.9	39.9
165°	39.0	39.9	39.0	38.1	38.1	38.1	38.1	39.0	39.0	39.0	39.9
167.5°	39.0	38.1	38.1	38.1	37.2	37.2	38.1	38.1	38.1	38.1	38.1
170°	38.1	37.2	37.2	37.2	37.2	37.2	37.2	37.2	37.2	38.1	38.1
172.5°	38.1	38.1	37.2	37.2	37.2	37.2	37.2	38.1	38.1	38.1	38.1
175°	37.2	38.1	38.1	38.1	37.2	37.2	37.2	38.1	38.1	38.1	38.1
177.5°	38.1	38.1	38.1	38.1	38.1	38.1	37.2	38.1	38.1	38.1	38.1
180°	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1

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: SP1-2411-284-1

Test Date: 11/15/2024

Luminaire Tested: TTN-D0-735-U-WQ

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

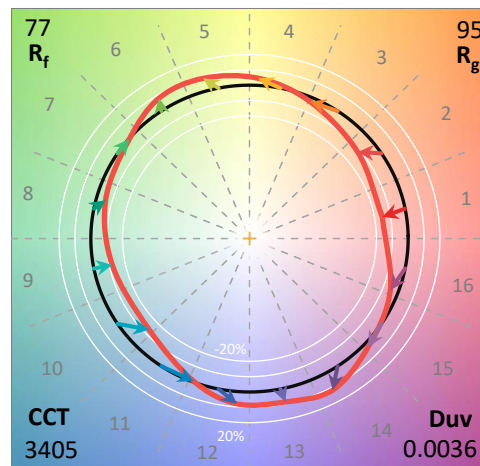
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/15/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-735-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3500K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 3405
 CIE u': 0.2365
 CIE v': 0.5180
 Duv: 0.0036
 CIE x: 0.4148
 CIE y: 0.4038
 CIE z: 0.1814
 Peak Wavelength (nm): 596
 Dominant Wavelength (nm): 579
 Purity: 45.70672
 Rf: 76.6
 Rg: 95.4

CRI (Ra):	73.9		
R1:	71.3	R9:	-18.0
R2:	80.3	R10:	53.1
R3:	87.8	R11:	68.6
R4:	73.2	R12:	42.6
R5:	69.8	R13:	72.5
R6:	71.8	R14:	92.7
R7:	82.8	R15:	64.3
R8:	54.1		



Test Conditions

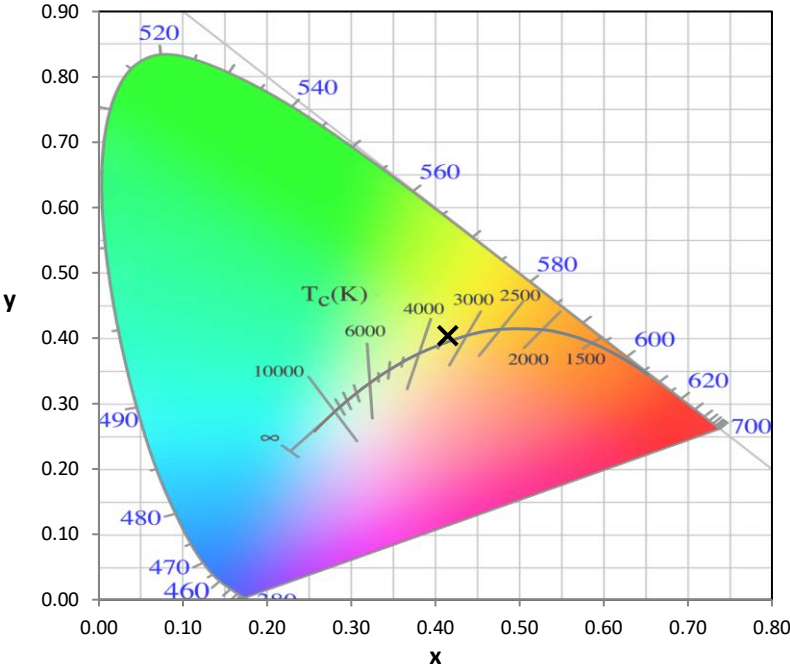
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

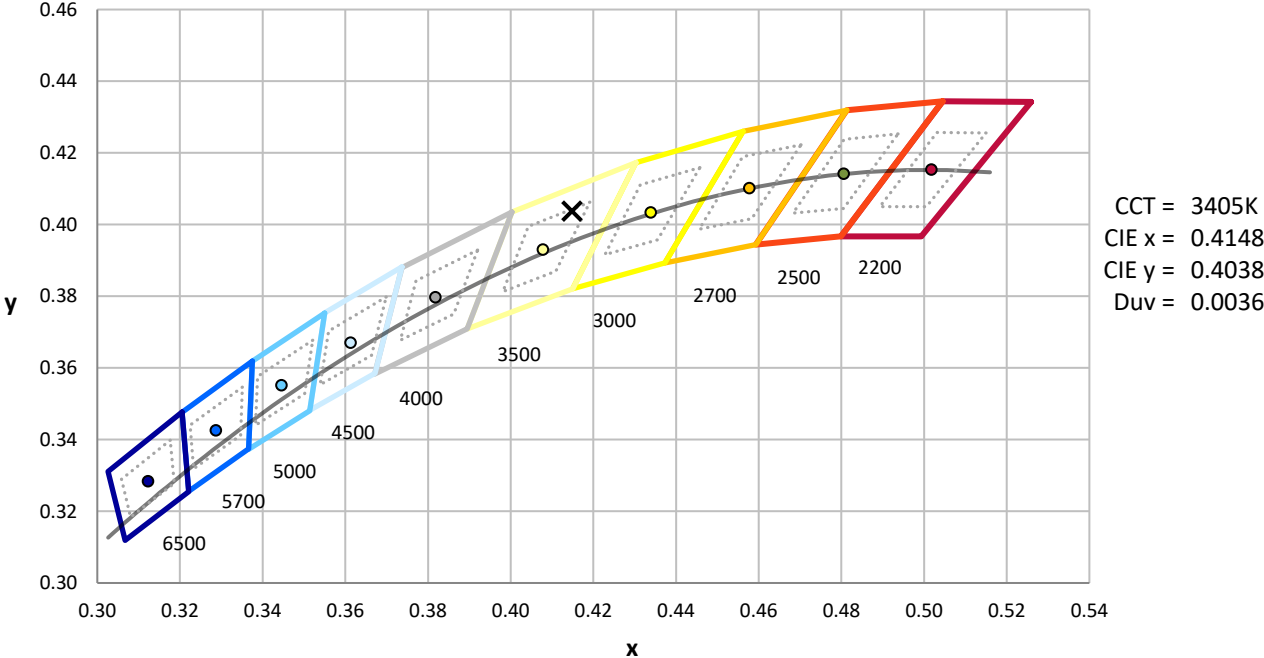
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



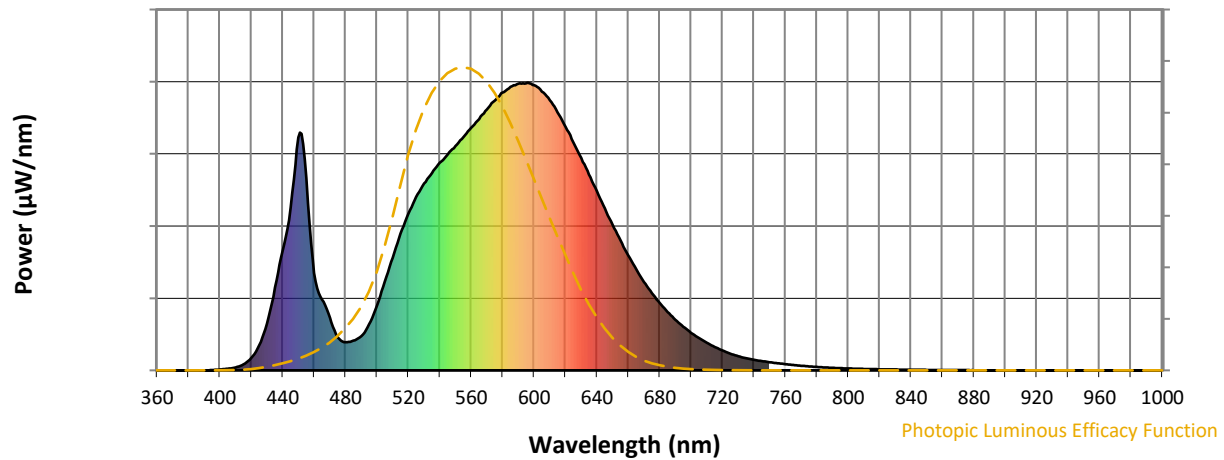
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

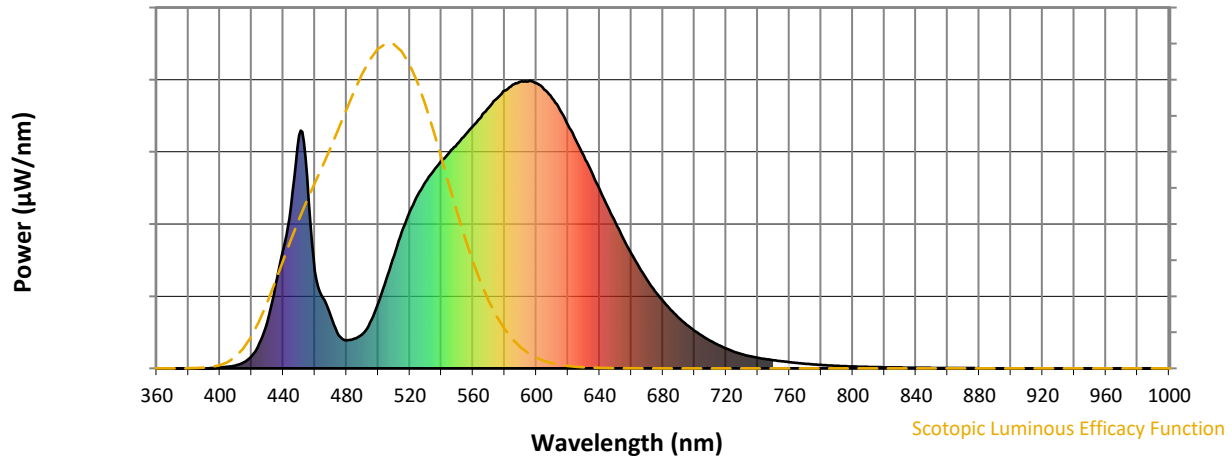


Photopic Lumens: NR

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	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Scotopic Flux vs. Wavelength



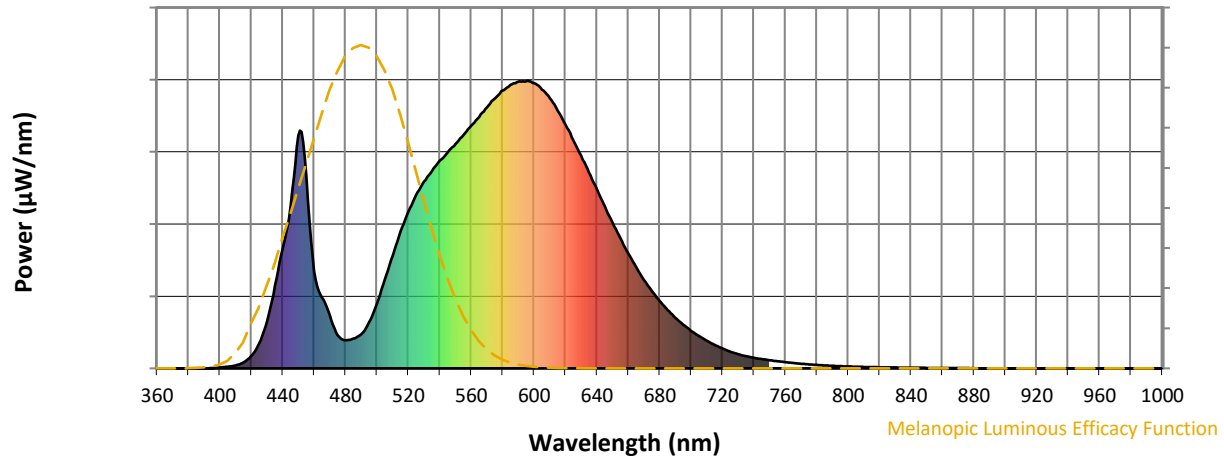
Scotopic Lumens: NR

S/P: 1.33

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	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-1

Melanopic Flux vs. Wavelength



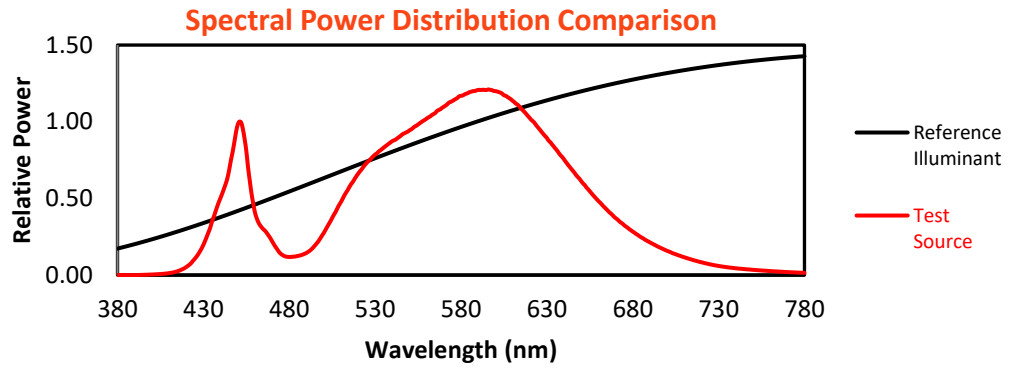
Melanopic Lumens: NR

M/P: 2.47

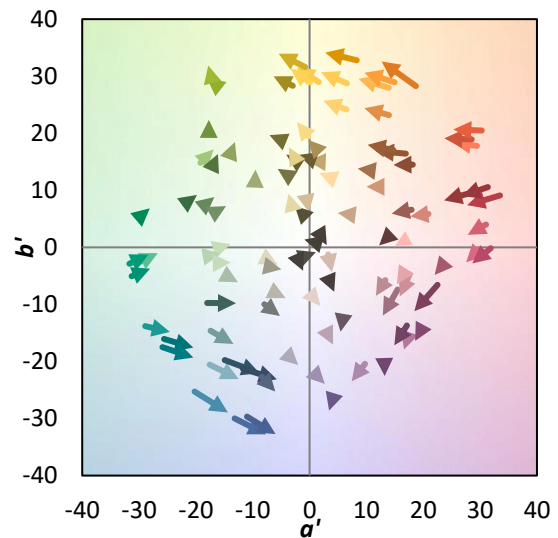
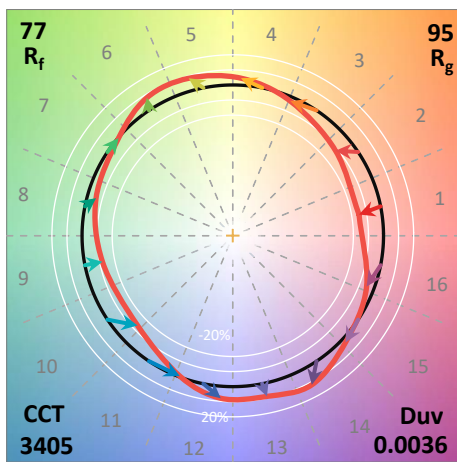
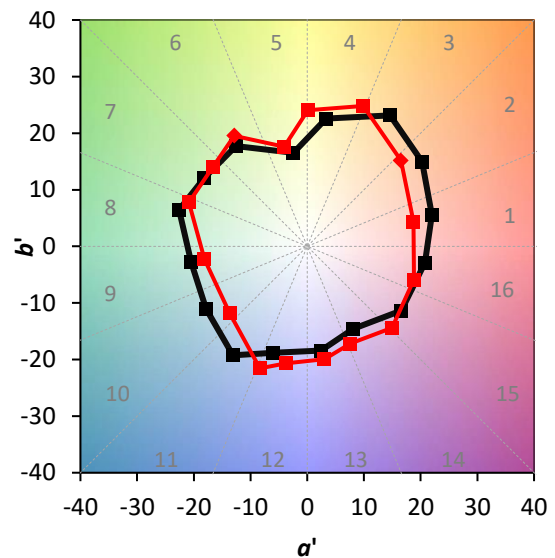
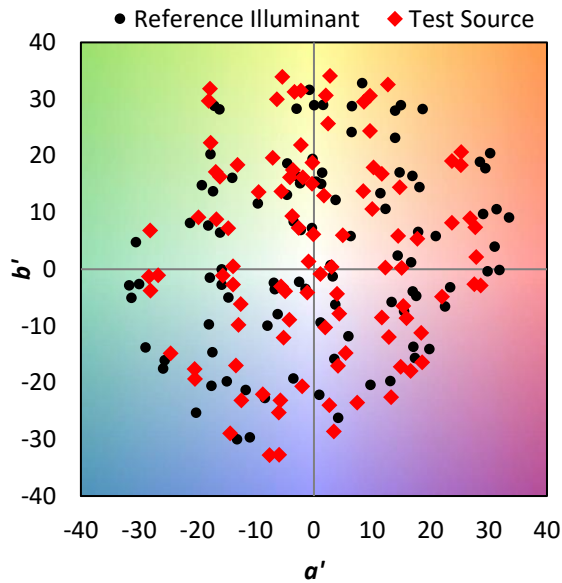
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

Summary

$R_f = 76.6$
 $R_g = 95.4$
 $CIE R_a = 73.9$
 $R_g = -18.0$

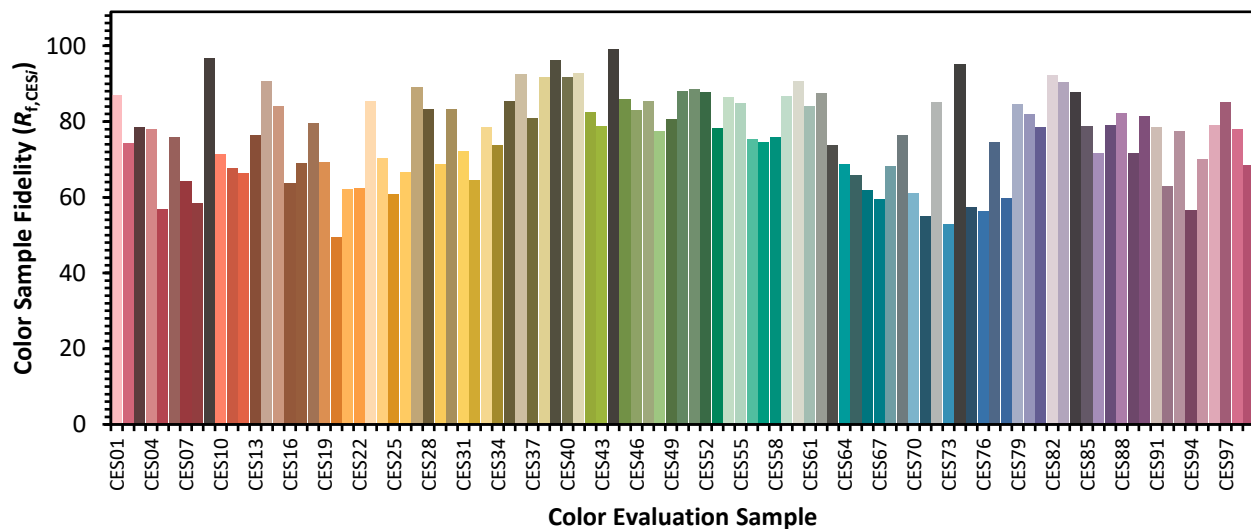


Color Vector Graphics

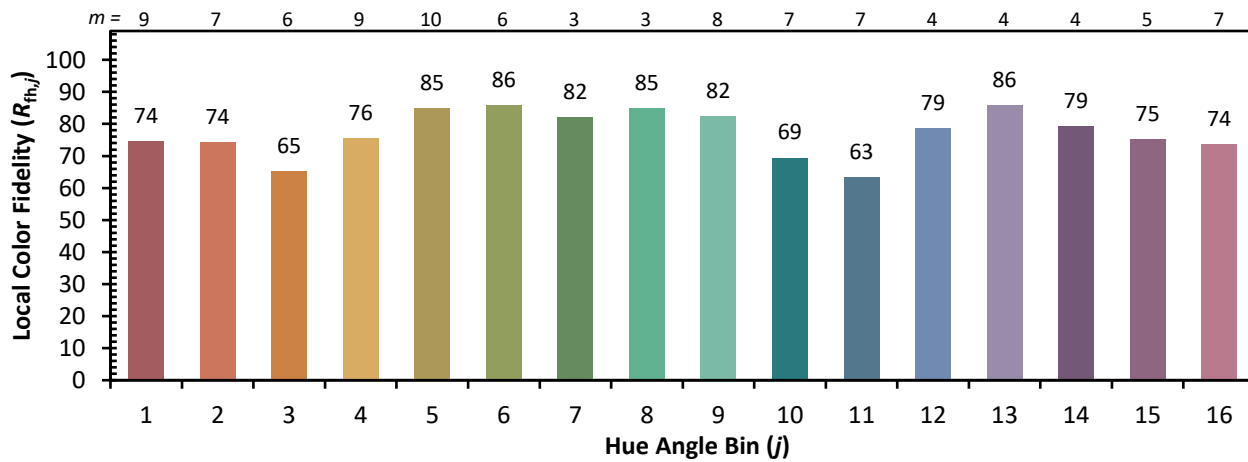
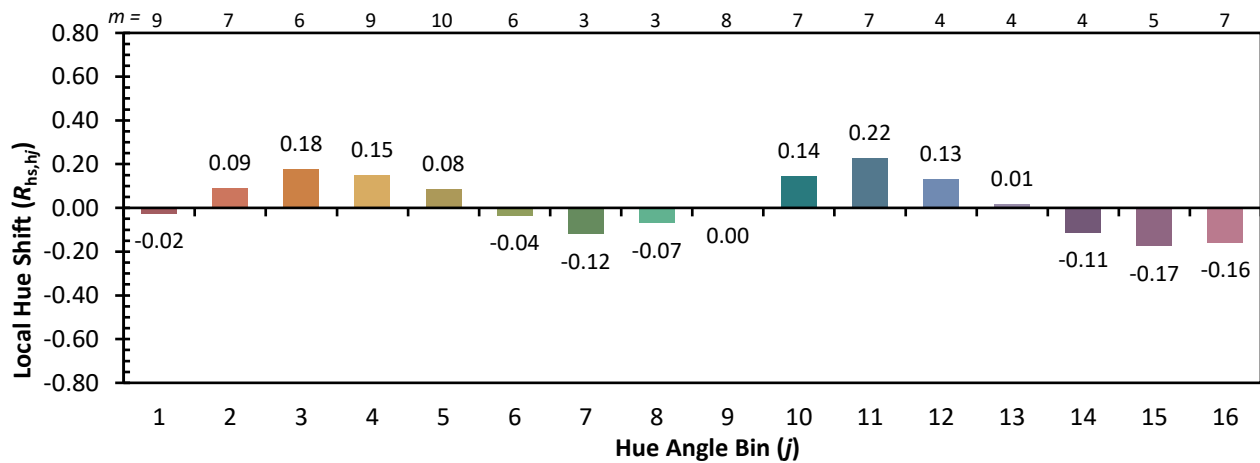
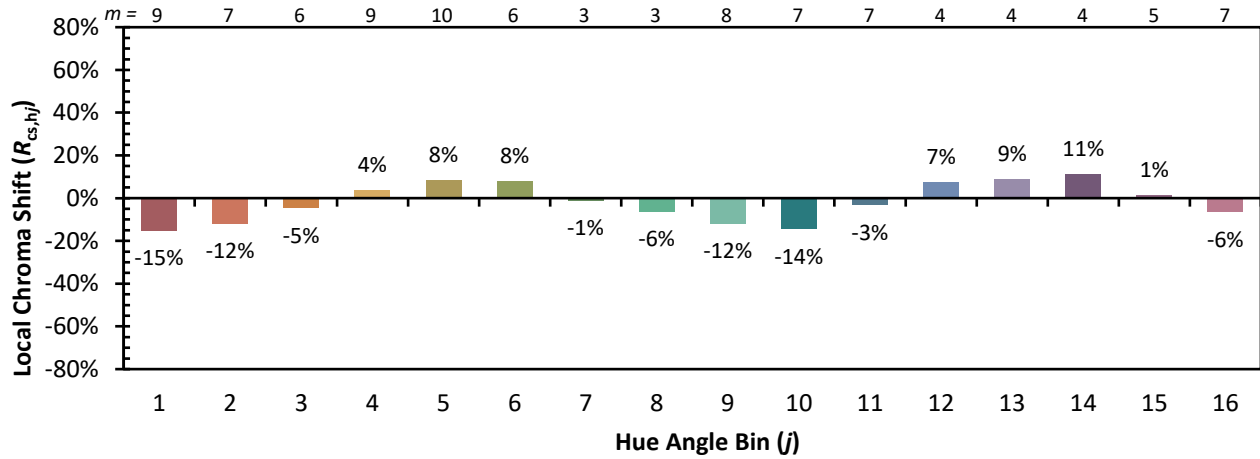


Individual Sample Fidelity Index ($R_{f,i}$)

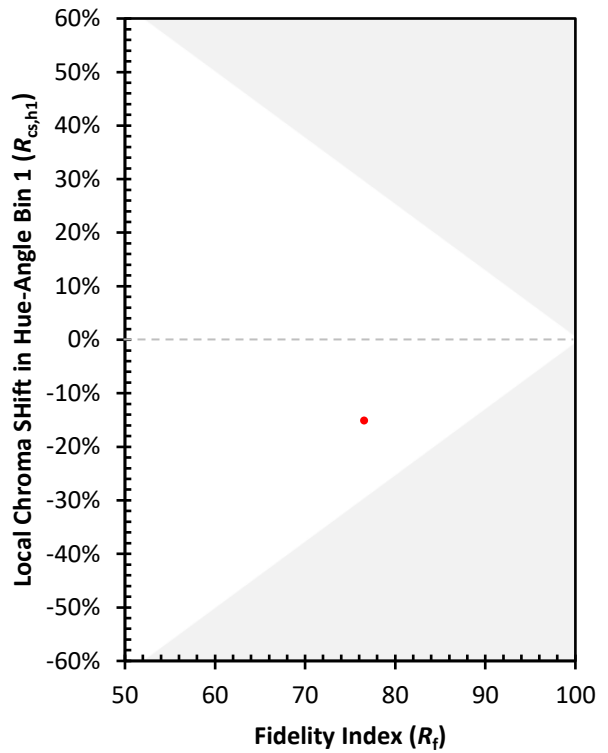
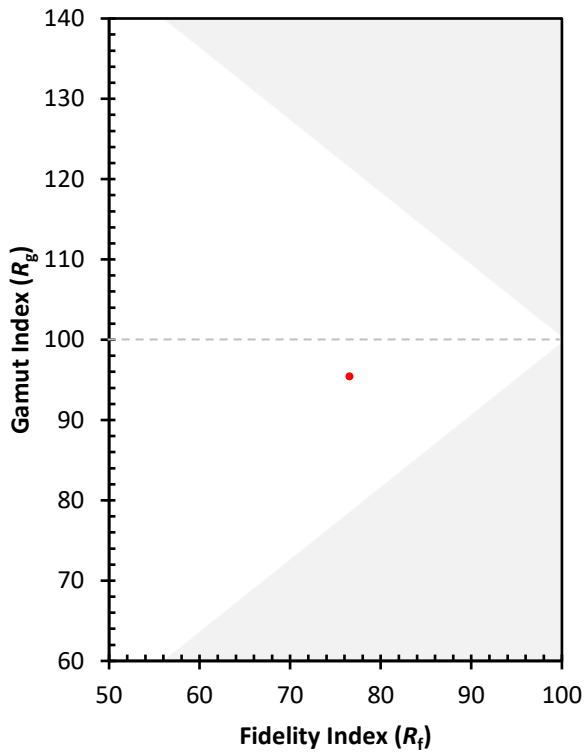
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 92
CES08 = 40	CES33 = 78	CES58 = 76	CES83 = 90
CES09 = 29	CES34 = 74	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 93	CES61 = 84	CES86 = 72
CES12 = 64	CES37 = 81	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 92	CES63 = 74	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 72
CES15 = 71	CES40 = 92	CES65 = 66	CES90 = 82
CES16 = 47	CES41 = 93	CES66 = 62	CES91 = 79
CES17 = 50	CES42 = 83	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 79	CES68 = 68	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 86	CES70 = 61	CES95 = 70
CES21 = 86	CES46 = 83	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 85	CES72 = 85	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 53	CES98 = 78
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 68
CES25 = 72	CES50 = 88	CES75 = 57	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)