

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: P832806

Luminaire Tested: **TTN-D0-735-U-DL-CG-UPL3**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P832806
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-UPL3
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: 1836.7 lumens
Efficiency: N/A
Efficacy: 103.8 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B0 - U4 - G1

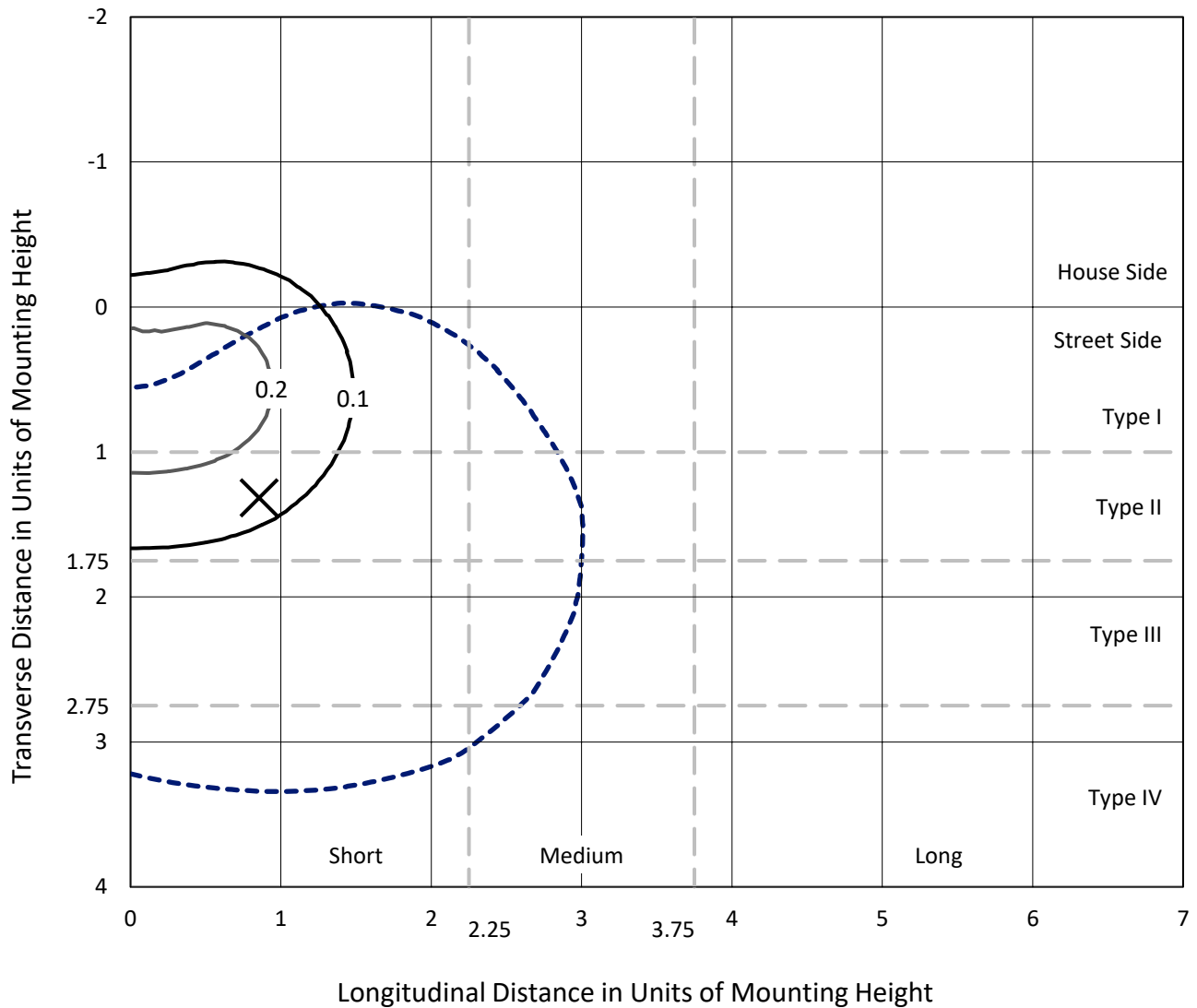
Input Watts (W): 17.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

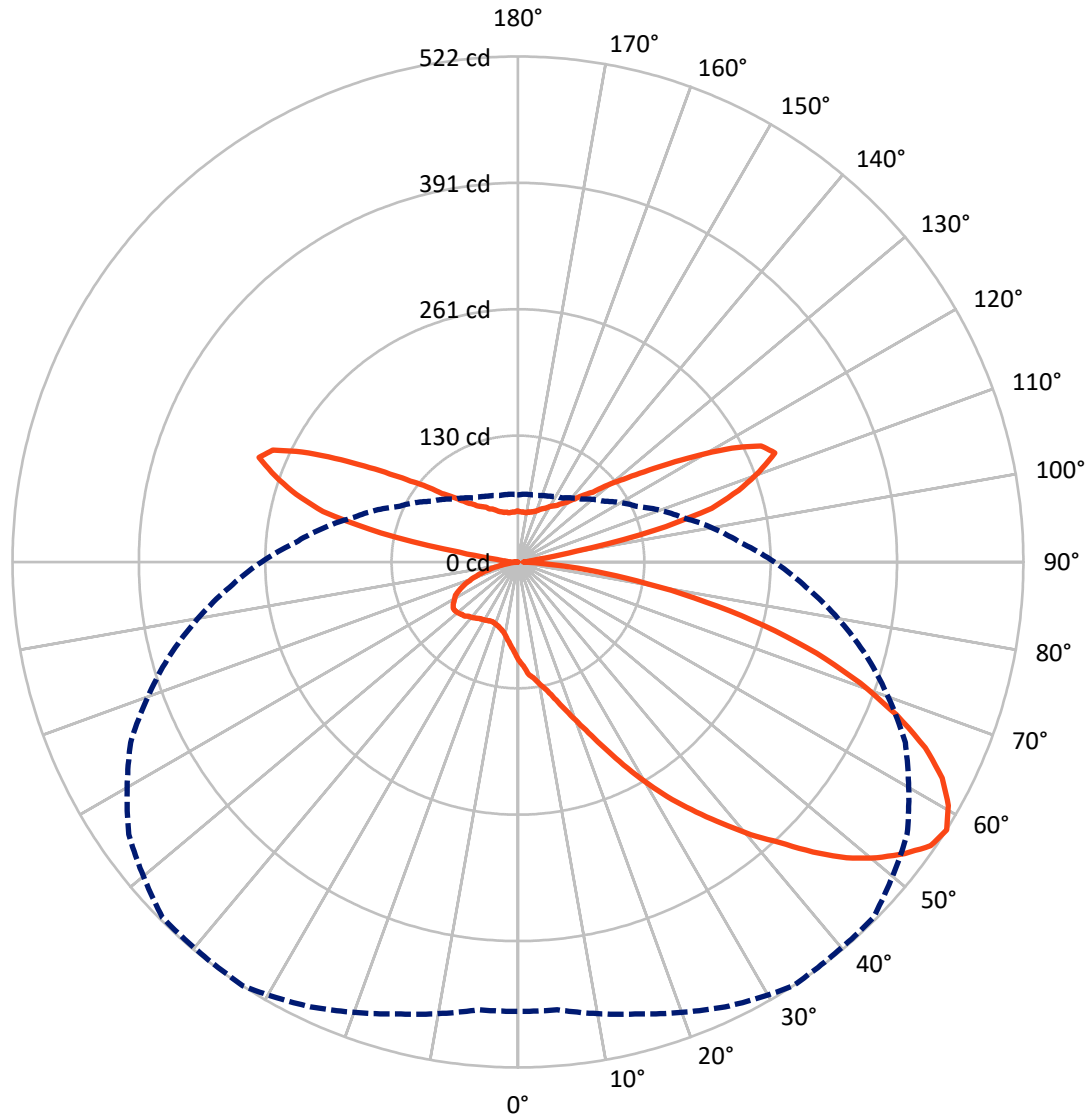
× Max cd
 - - - 1/2 Max cd



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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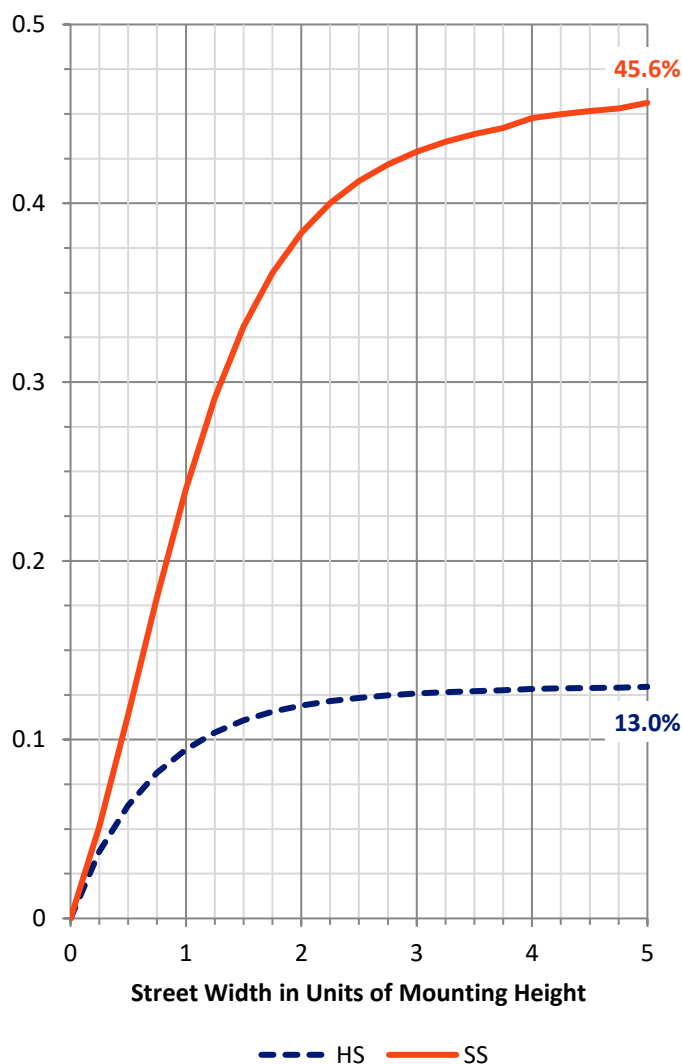
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	239.5	376.3	615.8
	% Fixture	13.0	20.5	33.5
Street Side	Lumens	844.5	376.3	1220.9
	% Fixture	46.0	20.5	66.5
Total	Lumens	1084.0	752.7	1836.7
	% Fixture	59.0	41.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.7	0.5
10°-20°	31.5	1.7
20°-30°	66.4	3.6
30°-40°	120.6	6.6
40°-50°	190.6	10.4
50°-60°	253.1	13.8
60°-70°	243.6	13.3
70°-80°	143.0	7.8
80°-90°	25.6	1.4
90°-100°	16.8	0.9
100°-110°	170.7	9.3
110°-120°	249.6	13.6
120°-130°	144.9	7.9
130°-140°	76.7	4.2
140°-150°	45.6	2.5
150°-160°	28.1	1.5
160°-170°	15.3	0.8
170°-180°	5.0	0.3
0°-90°	1084.0	59.0
0°-180°	1836.7	100.0

Coefficient of Utilization



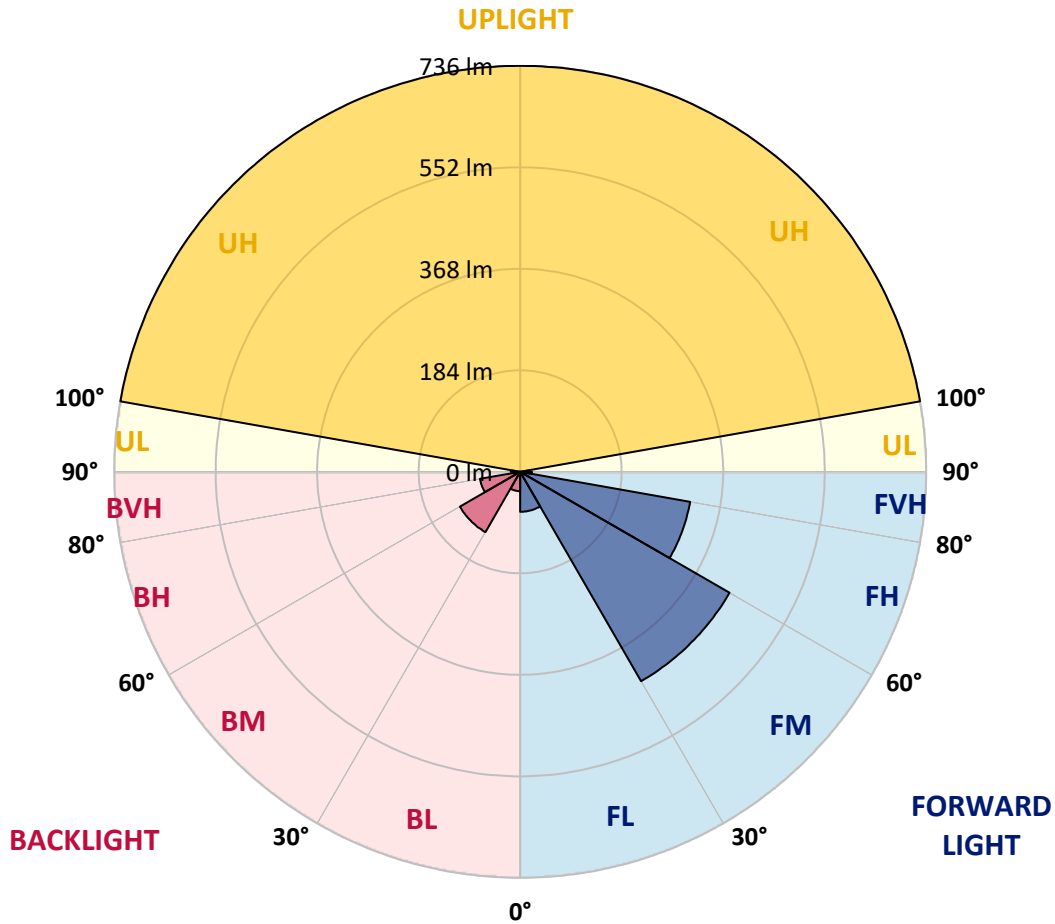
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	72.5	3.9			
FM (30°-60°)	438.1	23.9			
FH (60°-80°)	312.7	17.0			G0/660
FVH (80°-90°)	21.2	1.2			G1/100
BL (0°-30°)	35.2	1.9	B0/110		
BM (30°-60°)	126.1	6.9	B0/220		
BH (60°-80°)	73.9	4.0	B0/110		G0/110
BVH (80°-90°)	4.3	0.2			G0/10
UL (90°-100°)	16.8	0.9		U2/50	
UH (100°-180°)	735.8	40.1		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°	6.4	6.4	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.4
92.5°	6.4	6.4	6.4	9.0	10.0	10.3	9.0	10.3	7.7	7.7	6.4
95°	7.7	7.7	9.0	11.6	13.7	14.2	15.5	15.5	9.0	9.0	7.7
97.5°	10.3	11.6	11.6	14.2	21.4	23.2	42.5	25.8	12.9	12.9	11.6
100°	16.7	18.0	18.0	32.2	61.0	68.2	91.4	65.7	33.5	24.5	18.0
102.5°	54.1	56.7	69.5	104.3	144.5	154.5	140.4	118.5	112.0	77.3	61.8
105°	137.8	136.5	146.8	173.8	207.8	216.3	212.5	195.7	177.7	153.2	141.6
107.5°	181.6	181.6	190.6	213.8	239.5	245.9	287.1	291.0	230.5	202.2	189.3
110°	204.7	204.7	212.5	231.8	265.8	274.3	332.2	329.6	284.6	249.8	233.1



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	33°	35°	45°	55°	65°	75°	85°
112.5°	209.9	211.2	221.5	251.1	288.2	297.5	323.2	311.6	293.6	278.1	265.3
115°	217.6	217.6	229.2	257.5	278.1	283.3	293.6	280.7	266.5	256.2	251.1
117.5°	215.0	218.9	221.5	236.9	250.3	253.7	261.4	255.0	235.6	227.9	225.3
120°	199.6	199.6	202.2	209.9	217.1	218.9	222.8	220.2	207.3	200.9	199.6
122.5°	177.7	179.0	177.7	181.6	186.7	188.0	191.9	189.3	179.0	176.4	176.4
125°	155.8	155.8	154.5	157.1	160.2	161.0	159.7	161.0	155.8	154.5	154.5
127.5°	140.4	139.1	136.5	137.8	138.8	139.1	139.1	140.4	135.2	136.5	137.8
130°	124.9	124.9	122.3	122.3	122.3	122.3	119.8	122.3	119.8	121.0	122.3
132.5°	110.7	110.7	106.9	105.6	105.6	105.6	105.6	106.9	105.6	108.2	110.7
135°	99.2	99.2	95.3	96.6	96.6	96.6	95.3	96.6	95.3	97.9	99.2
137.5°	90.1	90.1	87.6	87.6	87.6	87.6	86.3	87.6	87.6	88.8	91.4
140°	82.4	82.4	81.1	81.1	80.1	79.8	81.1	81.1	81.1	82.4	83.7
142.5°	78.5	77.3	76.0	74.7	75.7	76.0	76.0	76.0	74.7	76.0	78.5
145°	72.1	72.1	70.8	70.8	70.8	70.8	72.1	70.8	70.8	72.1	72.1
147.5°	68.2	68.2	67.0	68.2	68.2	68.2	68.2	68.2	67.0	68.2	68.2
150°	67.0	65.7	64.4	65.7	65.7	65.7	64.4	64.4	64.4	64.4	65.7
152.5°	63.1	63.1	61.8	63.1	62.1	61.8	61.8	61.8	61.8	61.8	63.1
155°	60.5	60.5	59.2	60.5	60.5	60.5	60.5	60.5	60.5	60.5	60.5
157.5°	57.9	59.2	57.9	57.9	57.9	57.9	57.9	57.9	57.9	57.9	59.2
160°	56.7	56.7	56.7	56.7	55.7	55.4	55.4	55.4	56.7	56.7	56.7
162.5°	55.4	55.4	55.4	55.4	54.4	54.1	54.1	54.1	54.1	55.4	55.4
165°	55.4	54.1	54.1	54.1	53.1	52.8	52.8	52.8	52.8	54.1	55.4
167.5°	52.8	52.8	52.8	52.8	52.8	52.8	51.5	51.5	52.8	52.8	52.8
170°	52.8	52.8	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5
172.5°	52.8	52.8	52.8	52.8	51.8	51.5	51.5	51.5	51.5	51.5	52.8
175°	52.8	52.8	52.8	52.8	51.8	51.5	51.5	51.5	52.8	52.8	52.8
177.5°	52.8	52.8	52.8	52.8	51.8	51.5	52.8	52.8	52.8	52.8	52.8
180°	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8



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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°	6.4	6.4	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.4	6.4
92.5°	6.4	6.4	7.7	7.7	10.3	9.0	10.3	9.0	6.4	6.4	6.4
95°	7.7	7.7	9.0	9.0	15.5	15.5	14.2	11.6	9.0	7.7	7.7
97.5°	10.3	11.6	12.9	12.9	25.8	42.5	23.2	14.2	11.6	11.6	10.3
100°	18.0	18.0	24.5	33.5	65.7	91.4	68.2	32.2	18.0	18.0	16.7
102.5°	59.2	61.8	77.3	112.0	118.5	140.4	154.5	104.3	69.5	56.7	54.1
105°	141.6	141.6	153.2	177.7	195.7	212.5	216.3	173.8	146.8	136.5	137.8
107.5°	188.0	189.3	202.2	230.5	291.0	287.1	245.9	213.8	190.6	181.6	181.6
110°	230.5	233.1	249.8	284.6	329.6	332.2	274.3	231.8	212.5	204.7	204.7



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 CATALOG NUMBER: TTN-D0-735-U-DL-CG-UPL3

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	262.7	265.3	278.1	293.6	311.6	323.2	297.5	251.1	221.5	211.2	209.9
115°	253.7	251.1	256.2	266.5	280.7	293.6	283.3	257.5	229.2	217.6	217.6
117.5°	221.5	225.3	227.9	235.6	255.0	261.4	253.7	236.9	221.5	218.9	215.0
120°	197.0	199.6	200.9	207.3	220.2	222.8	218.9	209.9	202.2	199.6	199.6
122.5°	173.8	176.4	176.4	179.0	189.3	191.9	188.0	181.6	177.7	179.0	177.7
125°	153.2	154.5	154.5	155.8	161.0	159.7	161.0	157.1	154.5	155.8	155.8
127.5°	136.5	137.8	136.5	135.2	140.4	139.1	139.1	137.8	136.5	139.1	140.4
130°	123.6	122.3	121.0	119.8	122.3	119.8	122.3	122.3	122.3	124.9	124.9
132.5°	110.7	110.7	108.2	105.6	106.9	105.6	105.6	105.6	106.9	110.7	110.7
135°	99.2	99.2	97.9	95.3	96.6	95.3	96.6	96.6	95.3	99.2	99.2
137.5°	92.7	91.4	88.8	87.6	87.6	86.3	87.6	87.6	87.6	90.1	90.1
140°	83.7	83.7	82.4	81.1	81.1	81.1	79.8	81.1	81.1	82.4	82.4
142.5°	78.5	78.5	76.0	74.7	76.0	76.0	76.0	74.7	76.0	77.3	78.5
145°	73.4	72.1	72.1	70.8	70.8	72.1	70.8	70.8	70.8	72.1	72.1
147.5°	69.5	68.2	68.2	67.0	68.2	68.2	68.2	68.2	67.0	68.2	68.2
150°	65.7	65.7	64.4	64.4	64.4	64.4	65.7	65.7	64.4	65.7	67.0
152.5°	64.4	63.1	61.8	61.8	61.8	61.8	61.8	63.1	61.8	63.1	63.1
155°	60.5	60.5	60.5	60.5	60.5	60.5	60.5	60.5	59.2	60.5	60.5
157.5°	59.2	59.2	57.9	57.9	57.9	57.9	57.9	57.9	57.9	59.2	57.9
160°	57.9	56.7	56.7	56.7	55.4	55.4	55.4	56.7	56.7	56.7	56.7
162.5°	56.7	55.4	55.4	54.1	54.1	54.1	54.1	55.4	55.4	55.4	55.4
165°	54.1	55.4	54.1	52.8	52.8	52.8	52.8	54.1	54.1	54.1	55.4
167.5°	54.1	52.8	52.8	52.8	51.5	51.5	52.8	52.8	52.8	52.8	52.8
170°	52.8	51.5	51.5	51.5	51.5	51.5	51.5	51.5	51.5	52.8	52.8
172.5°	52.8	52.8	51.5	51.5	51.5	51.5	51.5	52.8	52.8	52.8	52.8
175°	51.5	52.8	52.8	52.8	51.5	51.5	51.5	52.8	52.8	52.8	52.8
177.5°	52.8	52.8	52.8	52.8	52.8	52.8	51.5	52.8	52.8	52.8	52.8
180°	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8	52.8

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

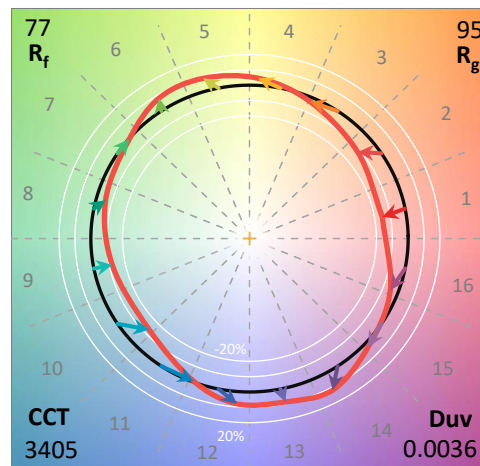
Test Information

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

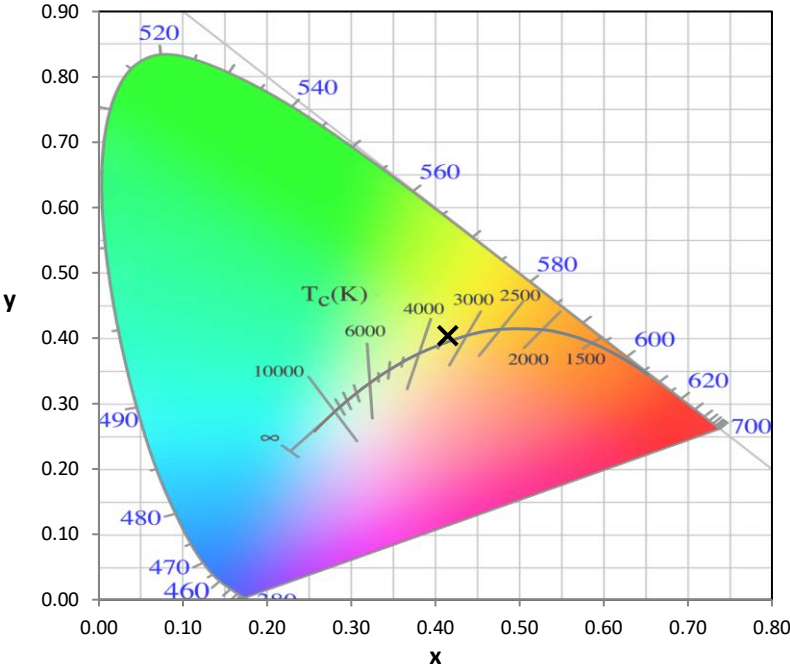
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

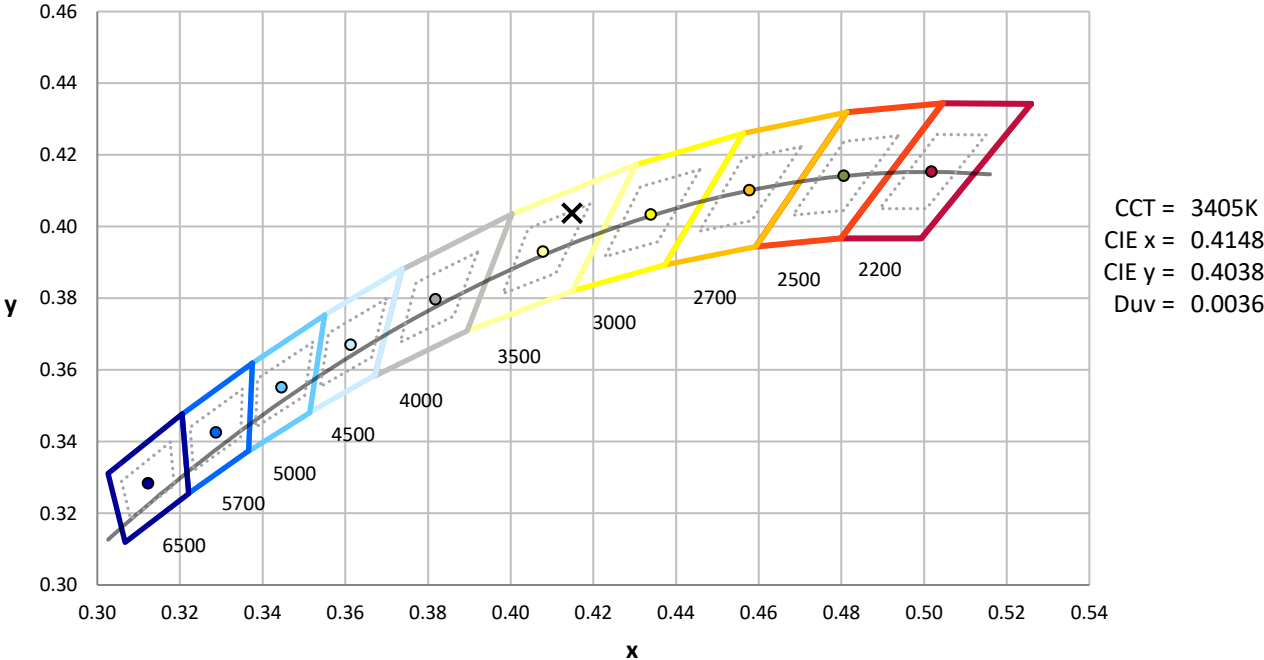
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



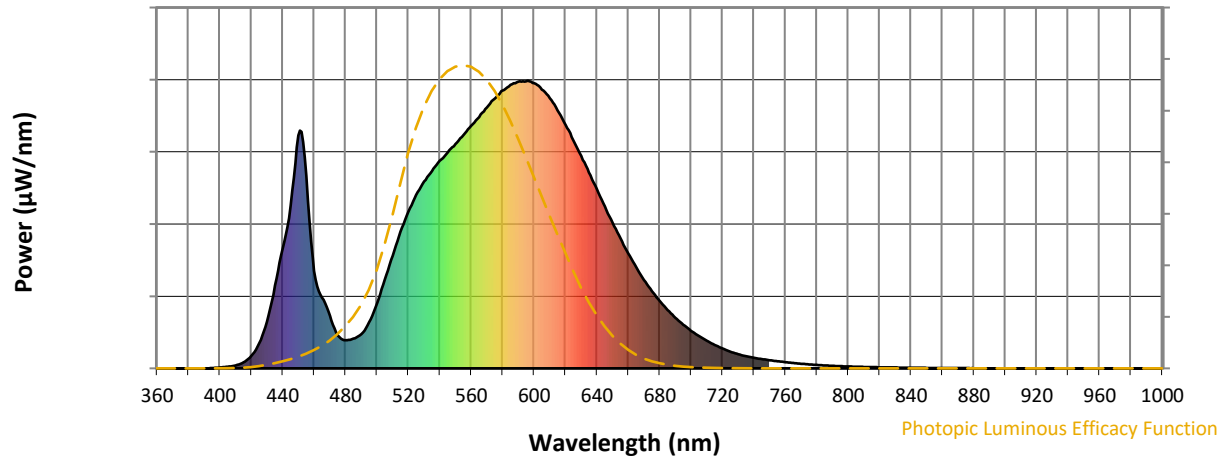
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

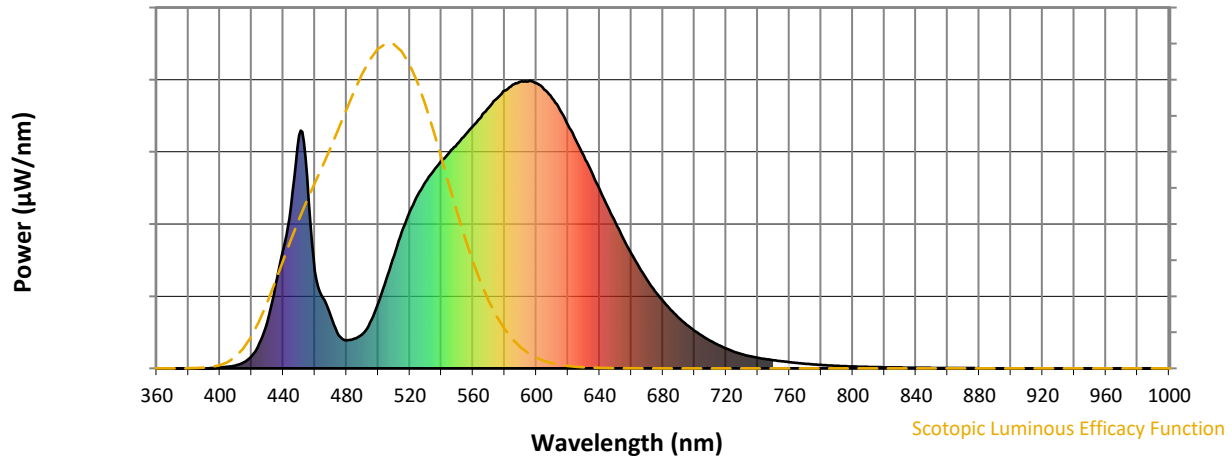


Photopic Lumens: NR

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



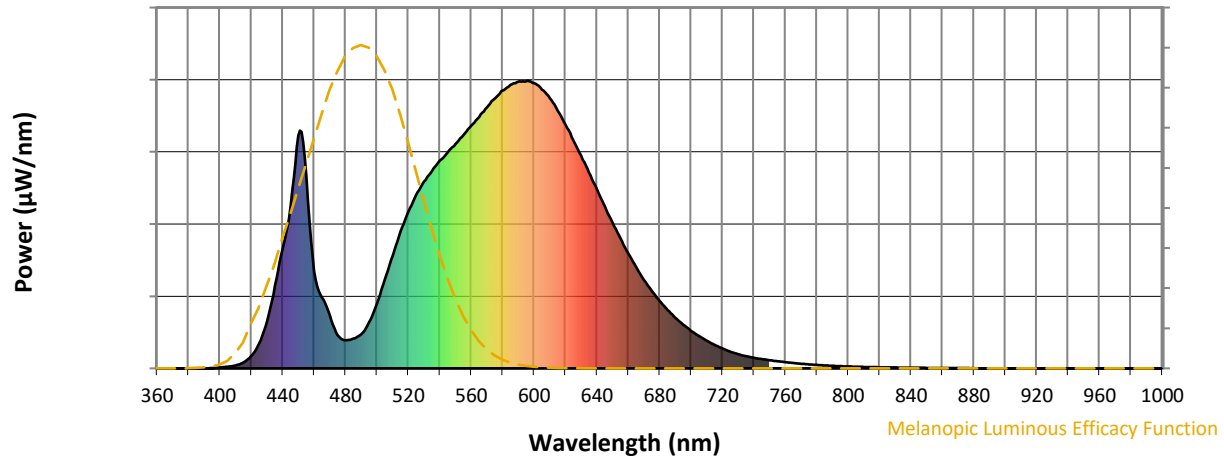
Scotopic Lumens: NR

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



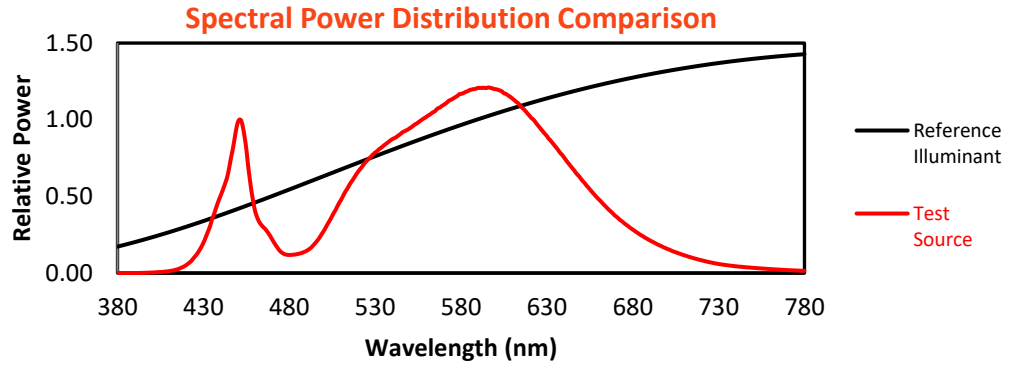
Melanopic Lumens: NR

M/P: 2.47

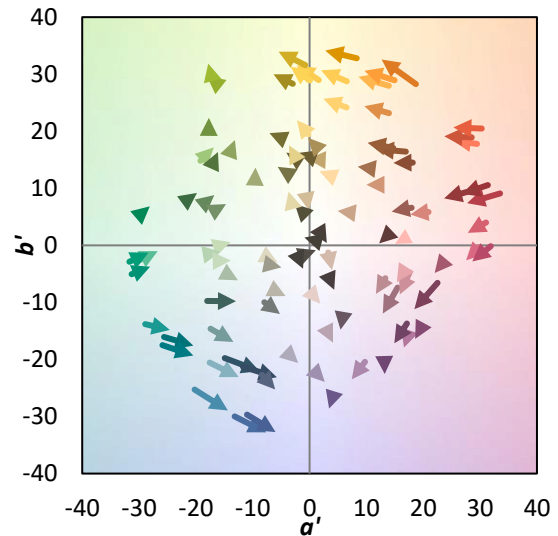
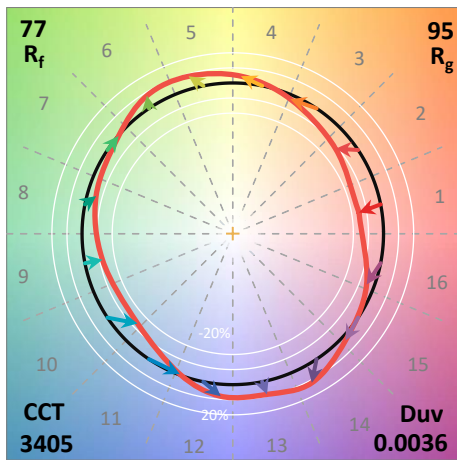
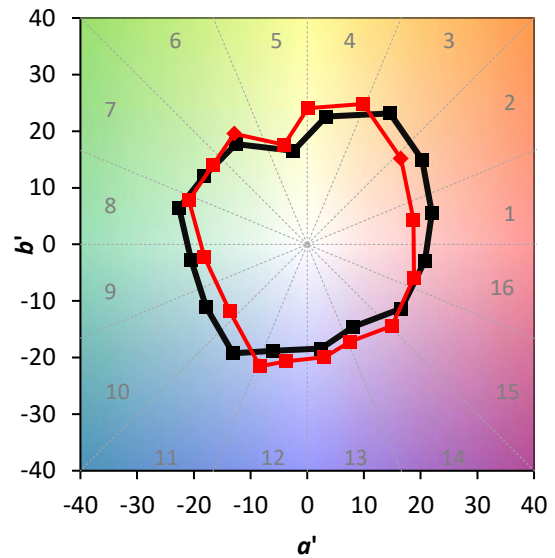
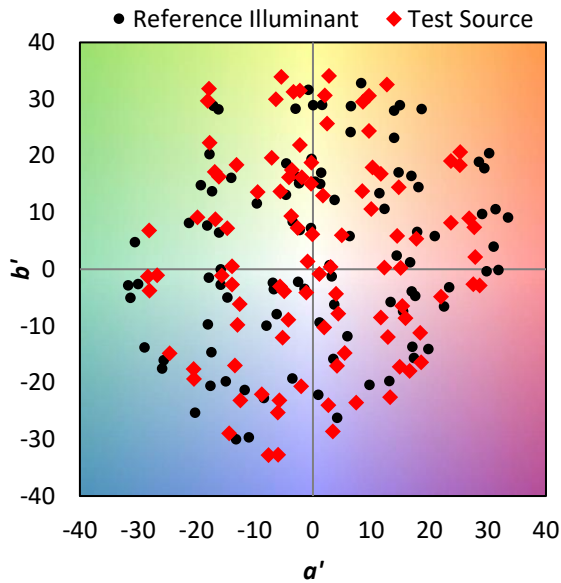
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	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

$R_f = 76.6$
 $R_g = 95.4$
 $CIE R_a = 73.9$
 $R_9 = -18.0$

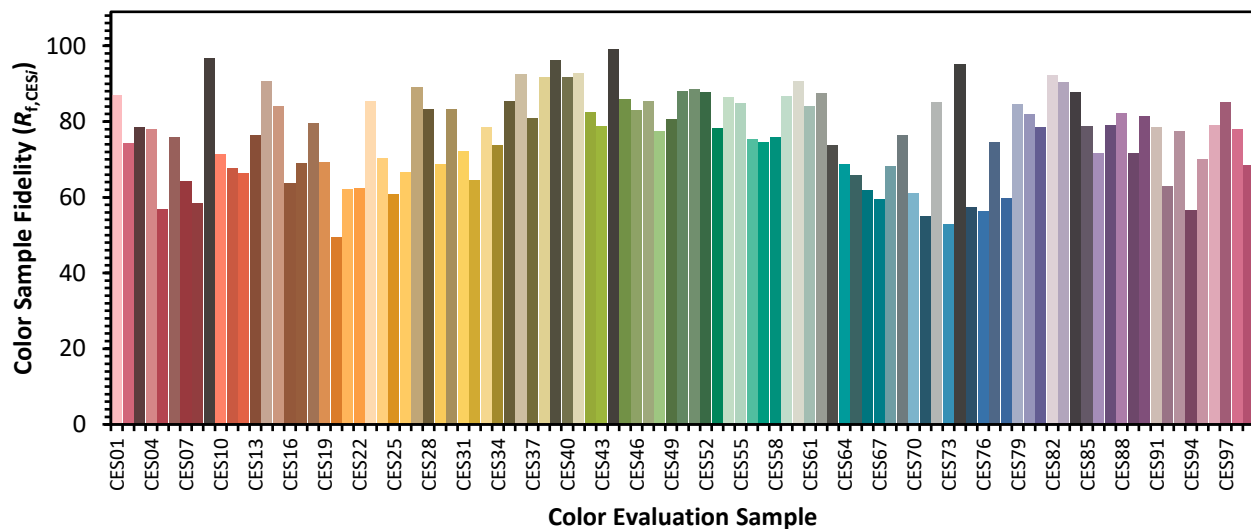


Color Vector Graphics

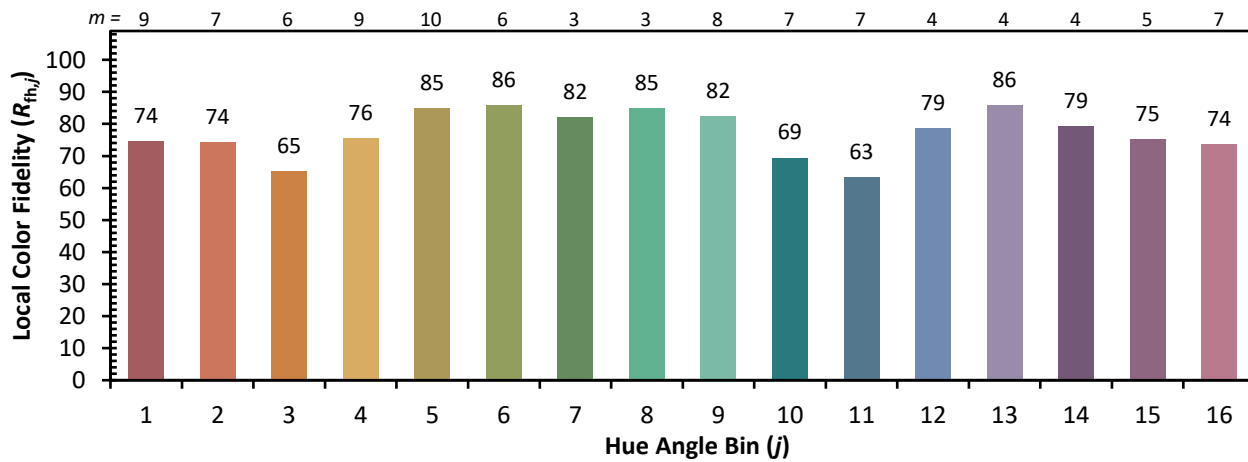
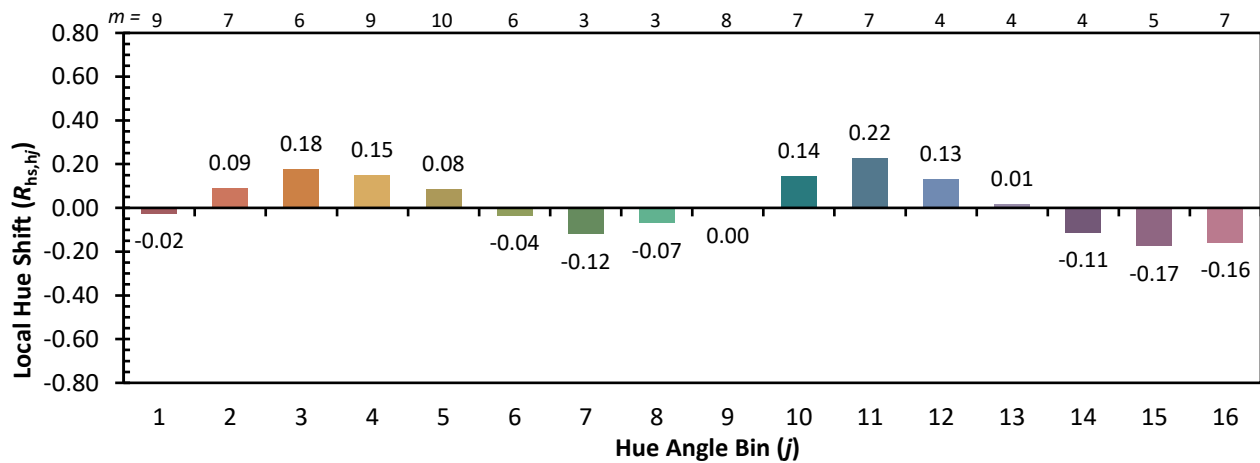
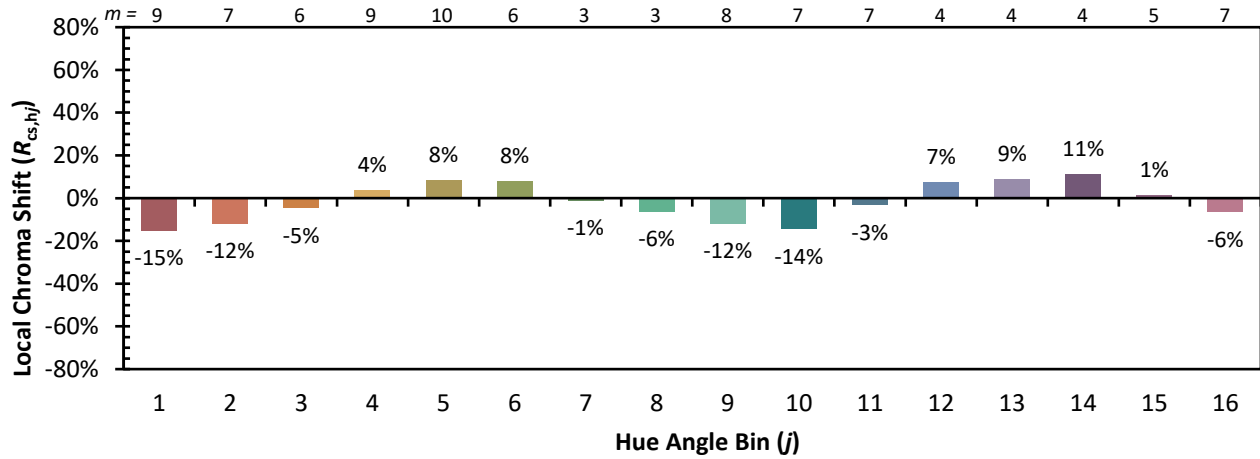


Individual Sample Fidelity Index ($R_{f,i}$)

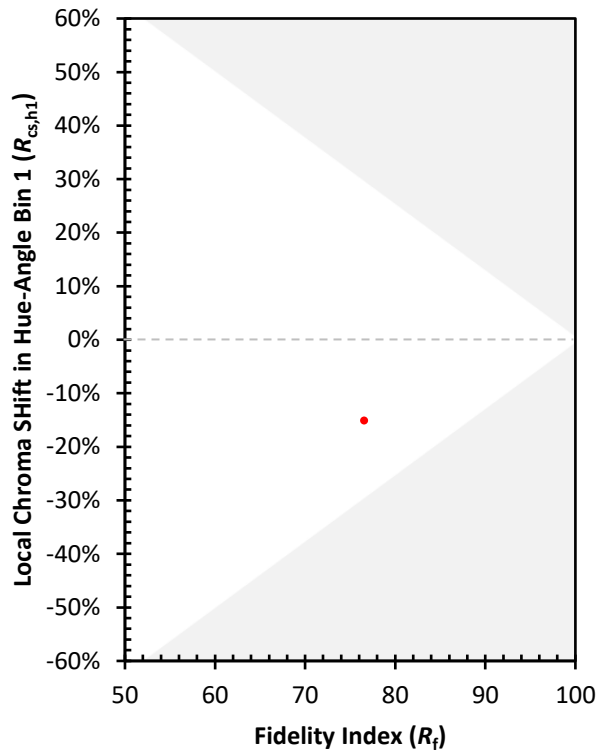
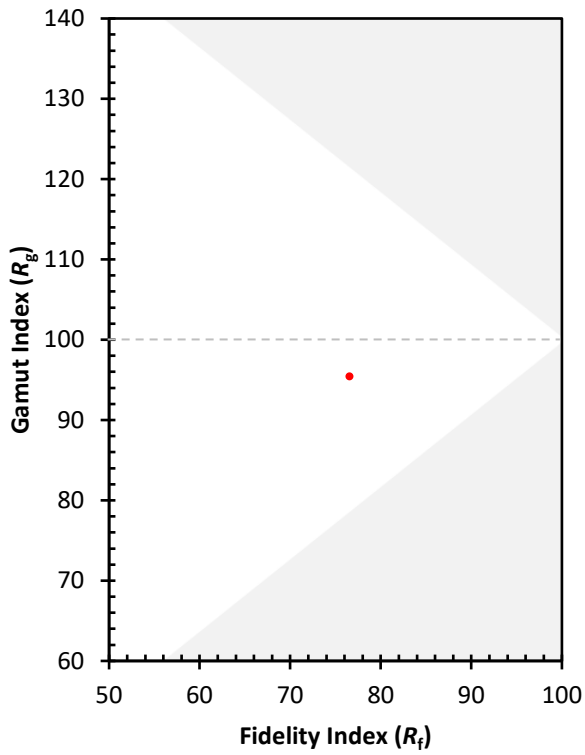
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 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)