

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: P833168

Luminaire Tested: **TTN-D1-735-U-DL-UPL2**

Issue Date: 5/15/2024

Test Information

Test Method: LM-79-08
Report Number: P833168
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-D1-735-U-DL-UPL2
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3564.8 lumens
Efficiency: N/A
Efficacy: 115.4 lumens/watt
Luminous Opening: Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification: Type IV - Short
BUG Rating: B1 - U4 - G2

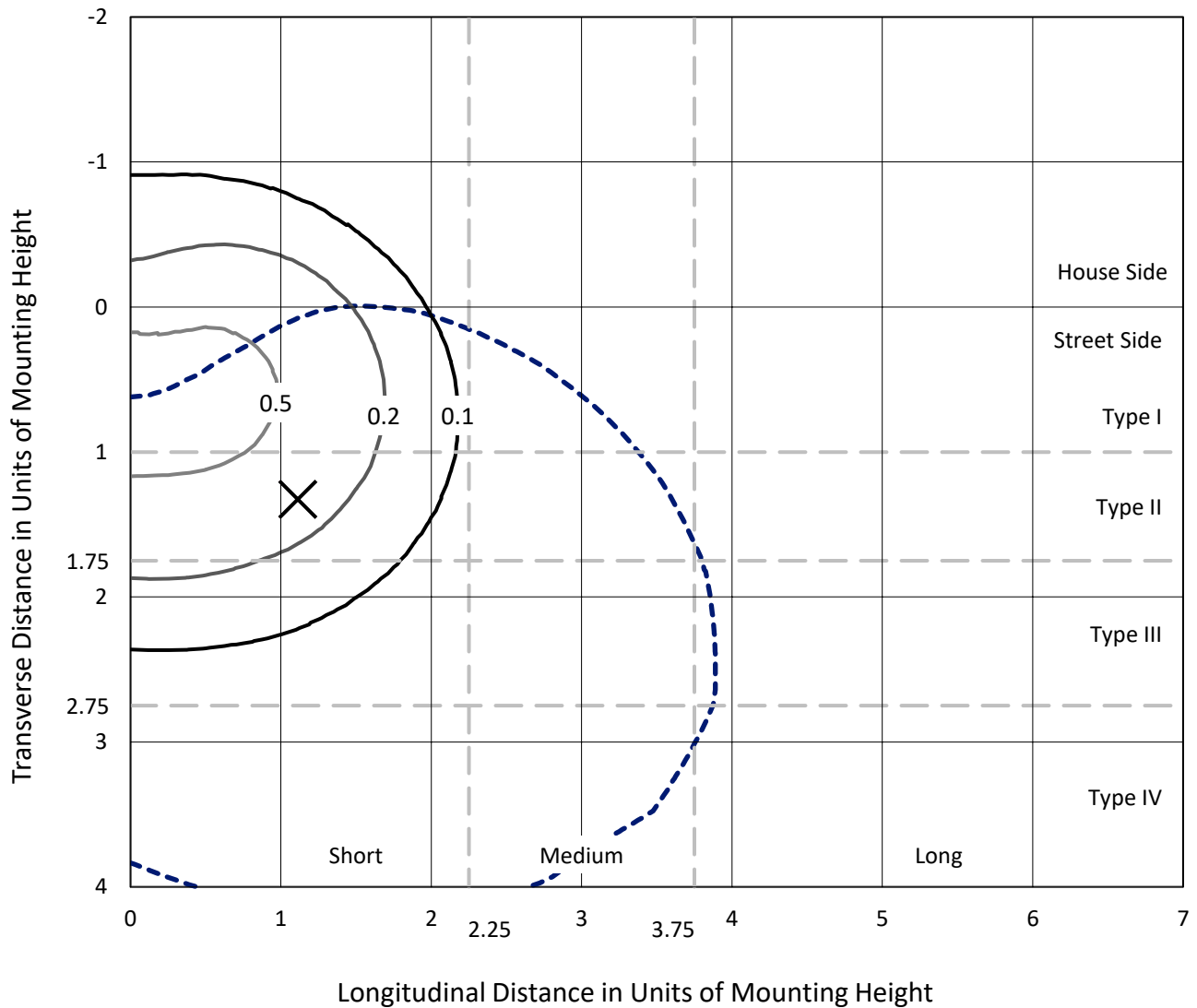
Input Watts (W): 30.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

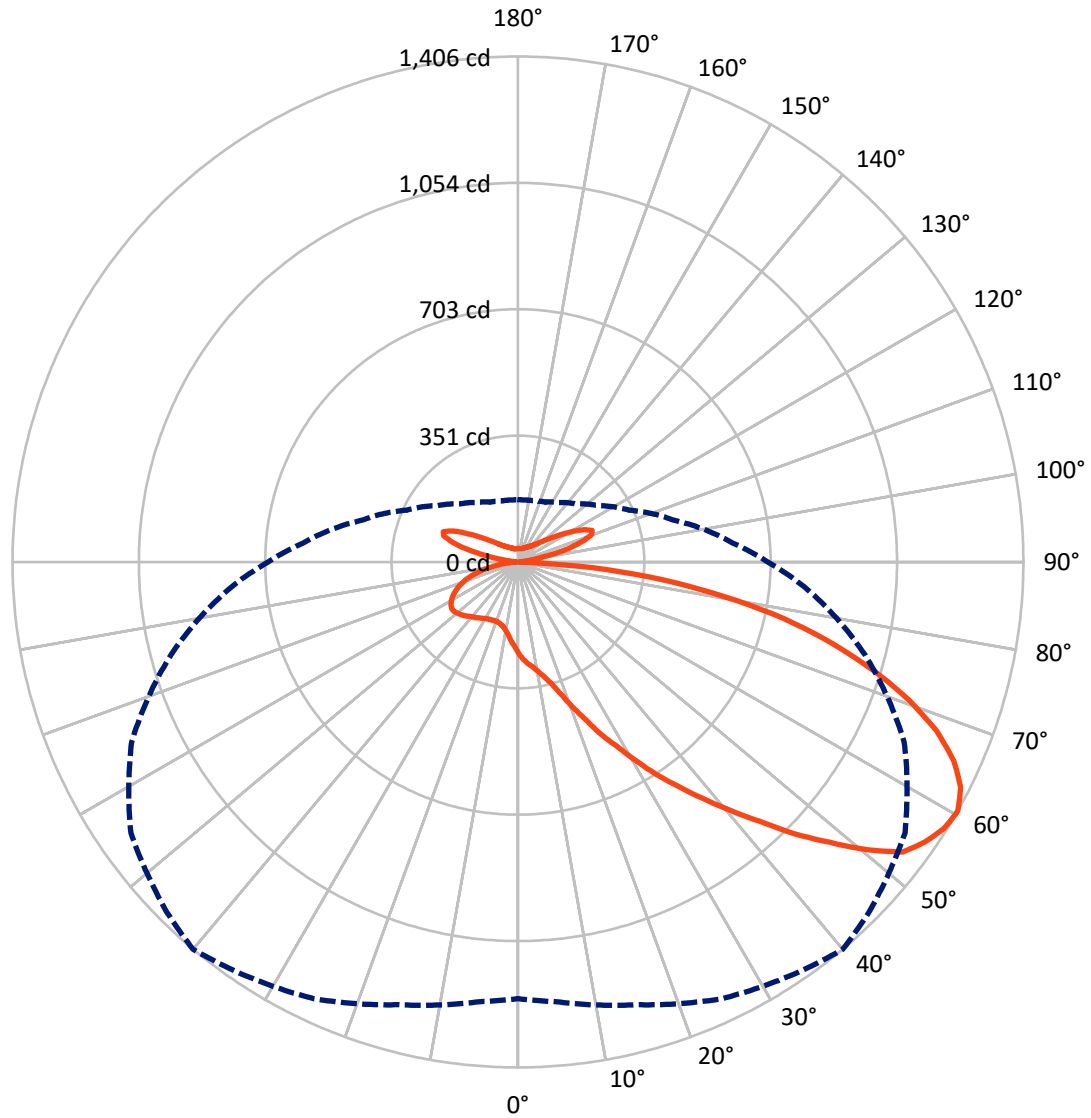
× Max cd
 - - - 1/2 Max cd



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

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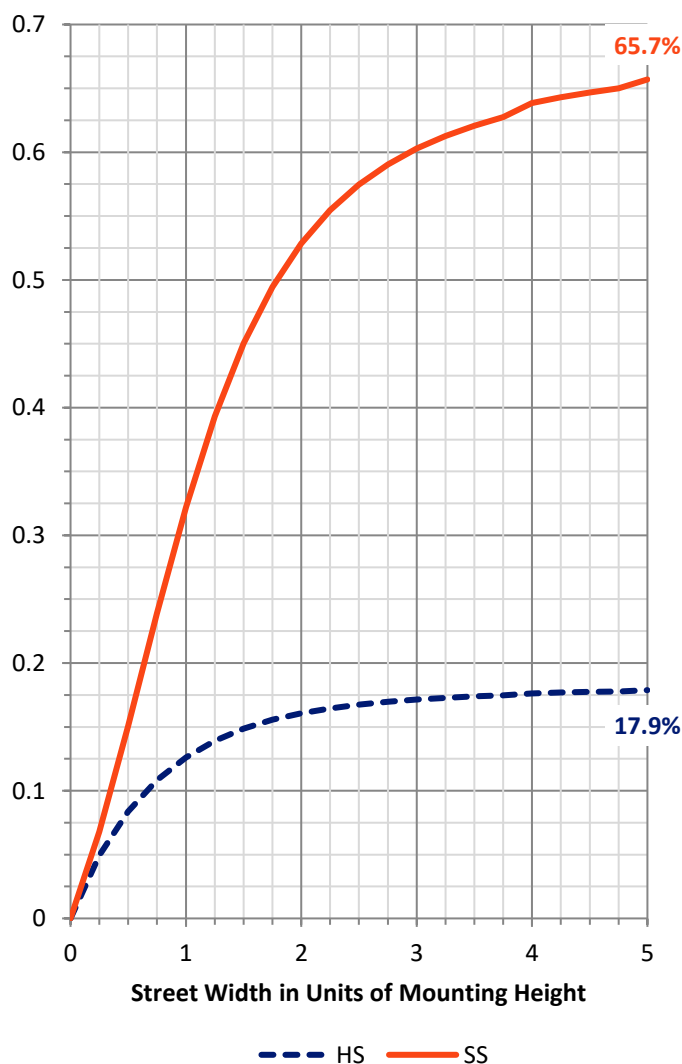
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	643.7	271.5	915.2
	% Fixture	18.1	7.6	25.7
Street Side	Lumens	2378.0	271.5	2649.6
	% Fixture	66.7	7.6	74.3
Total	Lumens	3021.7	543.0	3564.8
	% Fixture	84.8	15.2	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.0	0.7
10°-20°	76.6	2.1
20°-30°	161.8	4.5
30°-40°	295.7	8.3
40°-50°	480.4	13.5
50°-60°	667.8	18.7
60°-70°	692.3	19.4
70°-80°	496.0	13.9
80°-90°	127.2	3.6
90°-100°	12.1	0.3
100°-110°	123.2	3.5
110°-120°	180.1	5.1
120°-130°	104.5	2.9
130°-140°	55.4	1.6
140°-150°	32.9	0.9
150°-160°	20.2	0.6
160°-170°	11.0	0.3
170°-180°	3.6	0.1
0°-90°	3021.7	84.8
0°-180°	3564.8	100.0

Coefficient of Utilization

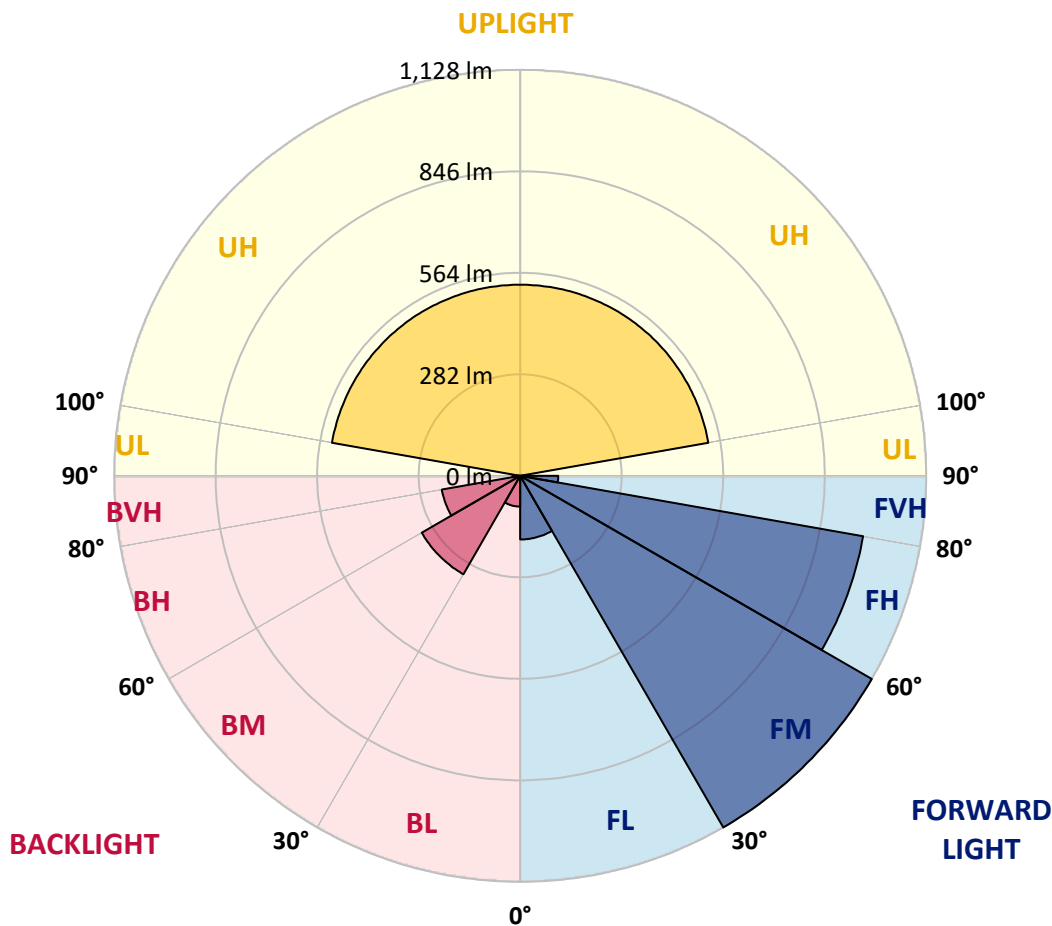


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	176.8	5.0			
FM (30°-60°)	1128.0	31.6			
FH (60°-80°)	967.5	27.1			G1/1800
FVH (80°-90°)	105.7	3.0			G2/225
BL (0°-30°)	85.6	2.4	B0/110		
BM (30°-60°)	315.8	8.9	B1/1000		
BH (60°-80°)	220.8	6.2	B1/500		G1/500
BVH (80°-90°)	21.5	0.6			G1/100
UL (90°-100°)	12.1	0.3		U2/50	
UH (100°-180°)	530.9	14.9		U4/1000	

BUG Rating: B1-U4-G2
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
0°	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4
2.5°	272.8	272.8	272.8	272.8	270.2	270.2	267.6	264.9	262.3	259.7	254.4
5°	296.4	296.4	293.8	291.2	285.9	283.3	280.7	275.4	270.2	264.9	257.1
7.5°	306.9	306.9	306.9	304.3	296.4	293.8	288.5	280.7	272.8	264.9	254.4
10°	325.3	325.3	322.6	320.0	312.1	309.5	304.3	293.8	280.7	267.6	254.4
12.5°	348.9	346.2	343.6	341.0	333.1	327.9	320.0	309.5	293.8	278.0	262.3
15°	377.7	372.5	372.5	367.2	359.4	351.5	346.2	330.5	314.8	293.8	272.8
17.5°	409.2	406.6	403.9	398.7	390.8	385.6	377.7	359.4	338.4	312.1	288.5
20°	448.5	443.3	445.9	438.0	430.2	427.6	414.4	393.5	367.2	338.4	309.5
22.5°	495.8	490.5	490.5	482.6	477.4	472.1	459.0	435.4	401.3	369.8	333.1
25°	548.2	543.0	543.0	537.7	532.5	527.2	511.5	485.3	445.9	406.6	364.6
27.5°	605.9	600.7	600.7	598.1	584.9	577.1	564.0	535.1	495.8	445.9	396.1
30°	666.3	661.0	666.3	661.0	653.1	637.4	621.7	590.2	545.6	490.5	430.2
32.5°	713.5	713.5	716.1	721.3	716.1	703.0	684.6	658.4	598.1	529.9	461.7
35°	768.6	768.6	773.8	781.7	779.0	765.9	747.6	718.7	655.8	574.4	495.8
37.5°	828.9	828.9	834.1	847.2	842.0	834.1	821.0	784.3	713.5	619.0	532.5
40°	894.5	891.8	897.1	915.4	918.1	907.6	891.8	855.1	773.8	676.7	571.8
42.5°	960.0	957.4	967.9	986.3	988.9	986.3	970.5	928.6	836.7	734.5	611.2
45°	1025.6	1025.6	1041.3	1070.2	1083.3	1078.1	1065.0	1012.5	915.4	794.8	663.6
47.5°	1093.8	1093.8	1114.8	1151.5	1167.3	1164.6	1159.4	1096.4	991.5	857.7	708.2
50°	1146.3	1146.3	1180.4	1222.3	1248.6	1259.1	1232.8	1175.1	1057.1	912.8	744.9
52.5°	1198.7	1198.7	1232.8	1298.4	1324.6	1340.4	1306.3	1245.9	1130.5	962.7	779.0
55°	1225.0	1230.2	1277.4	1340.4	1382.3	1374.5	1387.6	1306.3	1177.7	999.4	800.0
57.5°	1227.6	1235.5	1287.9	1353.5	1400.7	1398.1	1400.7	1327.3	1196.1	1007.2	802.7
60°	1214.5	1227.6	1274.8	1340.4	1385.0	1405.9	1379.7	1314.1	1185.6	999.4	800.0
62.5°	1183.0	1209.2	1259.1	1308.9	1374.5	1382.3	1361.4	1306.3	1156.8	991.5	786.9
65°	1112.2	1141.0	1211.8	1269.6	1322.0	1332.5	1308.9	1261.7	1127.9	954.8	744.9
67.5°	1041.3	1059.7	1120.0	1209.2	1245.9	1256.4	1248.6	1193.5	1078.1	881.3	695.1
70°	960.0	983.6	1030.9	1122.7	1159.4	1156.8	1180.4	1117.4	1002.0	818.4	642.6
72.5°	849.9	884.0	931.2	1007.2	1051.8	1036.1	1072.8	1020.4	902.3	739.7	571.8
75°	721.3	750.2	810.5	870.8	920.7	902.3	931.2	894.5	786.9	645.3	490.5
77.5°	577.1	611.2	666.3	721.3	755.4	755.4	768.6	737.1	653.1	529.9	401.3
80°	427.6	459.0	508.9	548.2	579.7	582.3	595.4	579.7	503.6	411.8	306.9
82.5°	283.3	299.0	343.6	375.1	406.6	403.9	424.9	414.4	351.5	283.3	204.6
85°	120.7	131.2	167.9	194.1	223.0	212.5	241.3	238.7	188.9	136.4	91.8
87.5°	5.2	7.9	7.9	5.2	7.9	2.6	7.9	10.5	7.9	5.2	5.2
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	7.4	7.0	6.5	7.4	5.6	5.6	4.6
95°	5.6	5.6	6.5	8.4	10.2	10.6	11.1	11.1	6.5	6.5	5.6
97.5°	7.4	8.4	8.4	10.2	16.7	23.7	30.7	18.6	9.3	9.3	8.4
100°	12.1	13.0	13.0	23.2	49.2	57.6	66.0	47.4	24.2	17.7	13.0
102.5°	39.0	40.9	50.2	75.3	111.5	106.4	101.3	85.5	80.8	55.7	44.6
105°	99.4	98.5	105.9	125.4	156.1	154.7	153.3	141.2	128.2	110.6	102.2
107.5°	131.0	131.0	137.5	154.2	177.4	192.3	207.2	210.0	166.3	145.9	136.6
110°	147.7	147.7	153.3	167.2	197.9	218.8	239.7	237.8	205.3	180.2	168.2



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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
112.5°	151.4	152.4	159.8	181.2	214.6	223.9	233.2	224.8	211.8	200.7	191.4
115°	157.0	157.0	165.4	185.8	204.4	208.1	211.8	202.5	192.3	184.9	181.2
117.5°	155.1	157.9	159.8	170.9	183.0	185.8	188.6	183.9	170.0	164.4	162.6
120°	144.0	144.0	145.9	151.4	157.9	159.3	160.7	158.9	149.6	144.9	144.0
122.5°	128.2	129.1	128.2	131.0	135.6	137.0	138.4	136.6	129.1	127.3	127.3
125°	112.4	112.4	111.5	113.3	116.1	115.6	115.2	116.1	112.4	111.5	111.5
127.5°	101.3	100.3	98.5	99.4	100.3	100.3	100.3	101.3	97.5	98.5	99.4
130°	90.1	90.1	88.3	88.3	88.3	87.4	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	69.2	68.7	69.7	68.7	70.6	71.5
137.5°	65.0	65.0	63.2	63.2	63.2	62.7	62.2	63.2	63.2	64.1	66.0
140°	59.5	59.5	58.5	58.5	57.6	58.0	58.5	58.5	58.5	59.5	60.4
142.5°	56.7	55.7	54.8	53.9	54.8	54.8	54.8	54.8	53.9	54.8	56.7
145°	52.0	52.0	51.1	51.1	51.1	51.6	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	47.0	46.5	46.5	46.5	46.5	47.4
152.5°	45.5	45.5	44.6	45.5	44.6	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	39.9	39.9	39.9	39.9	40.9	40.9	40.9
162.5°	39.9	39.9	39.9	39.9	39.0	39.0	39.0	39.0	39.0	39.9	39.9
165°	39.9	39.0	39.0	39.0	38.1	38.1	38.1	38.1	38.1	39.0	39.9
167.5°	38.1	38.1	38.1	38.1	38.1	37.7	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	37.2	37.2	37.2	37.2	37.2	37.2	38.1
175°	38.1	38.1	38.1	38.1	37.2	37.2	37.2	37.2	38.1	38.1	38.1
177.5°	38.1	38.1	38.1	38.1	37.2	37.7	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°	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4	254.4
2.5°	254.4	251.8	246.6	243.9	241.3	236.1	236.1	233.5	233.5	233.5	230.8
5°	254.4	249.2	243.9	236.1	230.8	225.6	220.3	215.1	212.5	212.5	209.8
7.5°	249.2	243.9	236.1	228.2	220.3	209.8	204.6	194.1	191.5	188.9	188.9
10°	249.2	243.9	230.8	220.3	209.8	199.4	191.5	181.0	173.1	170.5	170.5
12.5°	251.8	243.9	230.8	217.7	204.6	191.5	181.0	170.5	162.6	157.4	157.4
15°	262.3	251.8	236.1	217.7	202.0	186.2	175.7	162.6	154.8	149.5	149.5
17.5°	275.4	264.9	241.3	220.3	202.0	183.6	170.5	157.4	149.5	144.3	141.6
20°	293.8	278.0	251.8	223.0	202.0	183.6	167.9	154.8	144.3	139.0	139.0
22.5°	314.8	296.4	262.3	228.2	204.6	183.6	167.9	152.1	141.6	136.4	136.4
25°	341.0	317.4	278.0	238.7	209.8	186.2	167.9	152.1	141.6	136.4	136.4
27.5°	369.8	343.6	293.8	249.2	215.1	188.9	167.9	152.1	141.6	136.4	136.4
30°	396.1	367.2	309.5	259.7	223.0	191.5	170.5	154.8	144.3	139.0	136.4
32.5°	424.9	388.2	325.3	270.2	228.2	196.7	173.1	157.4	144.3	139.0	139.0
35°	453.8	414.4	341.0	283.3	236.1	202.0	175.7	160.0	146.9	141.6	141.6
37.5°	485.3	443.3	359.4	293.8	243.9	207.2	181.0	162.6	149.5	144.3	144.3
40°	522.0	472.1	377.7	306.9	251.8	212.5	183.6	167.9	154.8	149.5	149.5
42.5°	556.1	498.4	396.1	317.4	259.7	217.7	188.9	170.5	160.0	154.8	154.8
45°	590.2	529.9	414.4	330.5	267.6	225.6	194.1	178.4	165.3	160.0	160.0
47.5°	629.5	558.7	435.4	341.0	275.4	230.8	199.4	183.6	170.5	167.9	165.3
50°	661.0	579.7	448.5	351.5	280.7	236.1	204.6	186.2	175.7	170.5	170.5
52.5°	689.9	600.7	459.0	356.7	283.3	238.7	209.8	191.5	181.0	175.7	175.7
55°	705.6	608.5	466.9	356.7	285.9	241.3	209.8	191.5	181.0	178.4	175.7
57.5°	705.6	608.5	461.7	351.5	280.7	236.1	207.2	188.9	181.0	175.7	175.7
60°	695.1	600.7	448.5	341.0	272.8	228.2	202.0	183.6	175.7	173.1	173.1
62.5°	679.4	587.6	438.0	327.9	262.3	217.7	194.1	175.7	170.5	170.5	167.9
65°	637.4	548.2	414.4	309.5	246.6	204.6	183.6	167.9	162.6	160.0	157.4
67.5°	592.8	511.5	377.7	288.5	225.6	191.5	170.5	157.4	149.5	149.5	146.9
70°	548.2	472.1	343.6	259.7	202.0	175.7	154.8	141.6	136.4	136.4	136.4
72.5°	487.9	422.3	304.3	228.2	178.4	154.8	139.0	125.9	123.3	123.3	120.7
75°	417.1	359.4	257.1	194.1	149.5	131.2	118.0	104.9	104.9	104.9	104.9
77.5°	341.0	291.2	204.6	154.8	118.0	104.9	97.1	86.6	86.6	86.6	86.6
80°	257.1	215.1	149.5	112.8	86.6	76.1	70.8	65.6	68.2	68.2	65.6
82.5°	167.9	141.6	94.4	70.8	55.1	49.8	49.8	44.6	47.2	47.2	47.2
85°	73.4	63.0	39.3	31.5	26.2	26.2	26.2	23.6	26.2	26.2	26.2
87.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	0.0	2.6	5.2	2.6
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: P833168
 CATALOG NUMBER: TTN-D1-735-U-DL-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

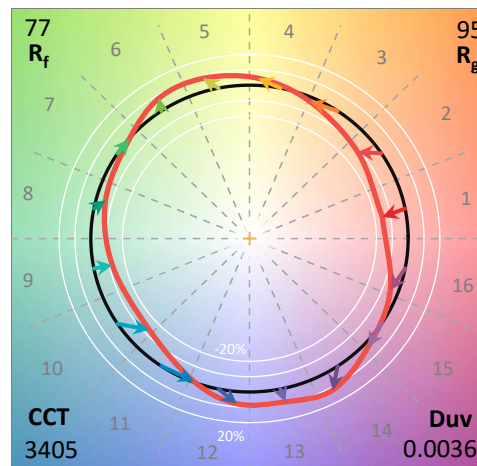
Test Information

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

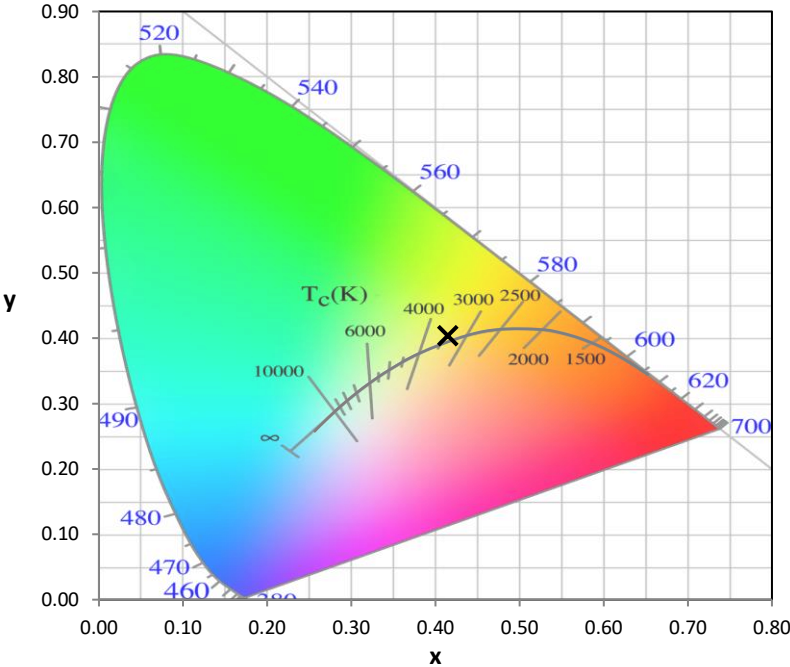
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

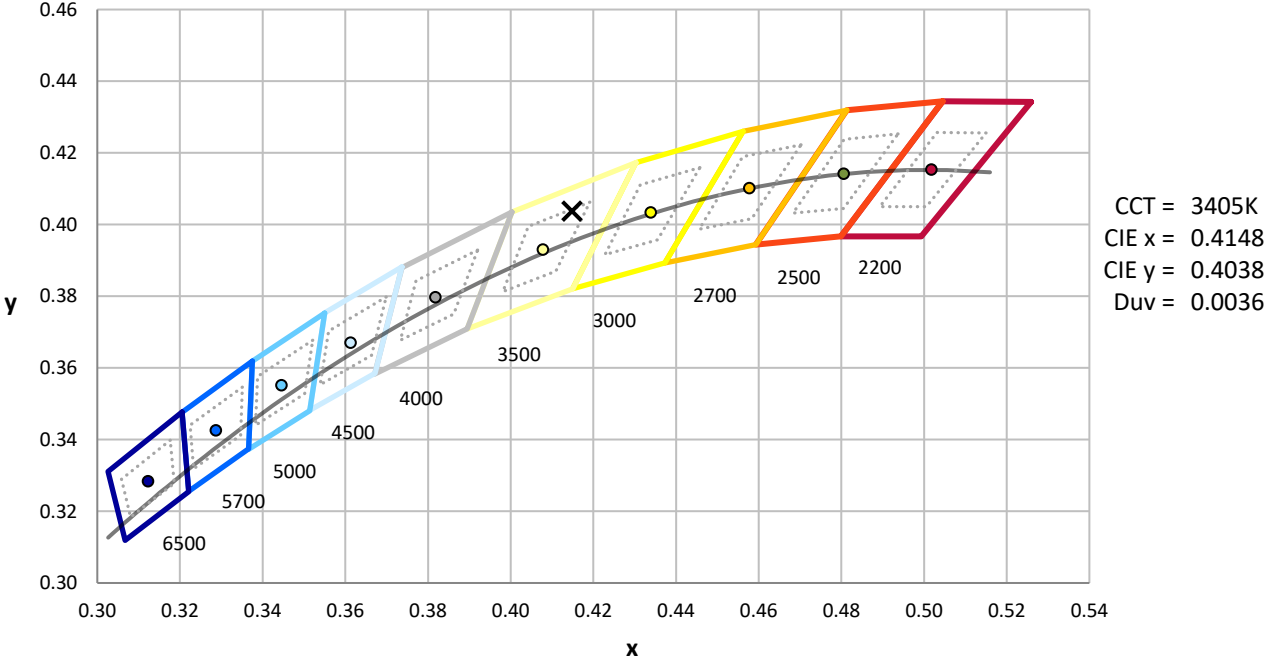
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2411-284-1

CIE 1931 Chromaticity Diagram



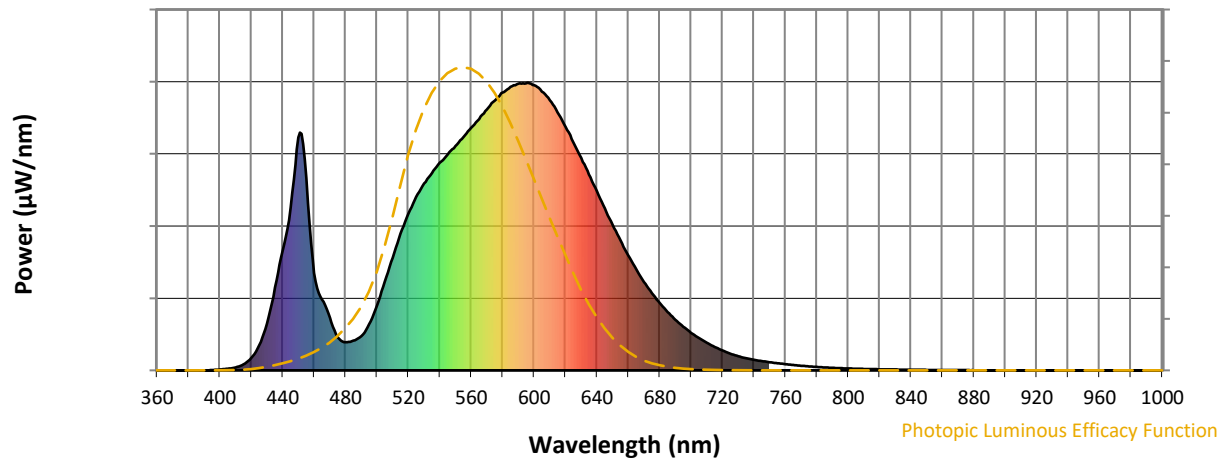
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

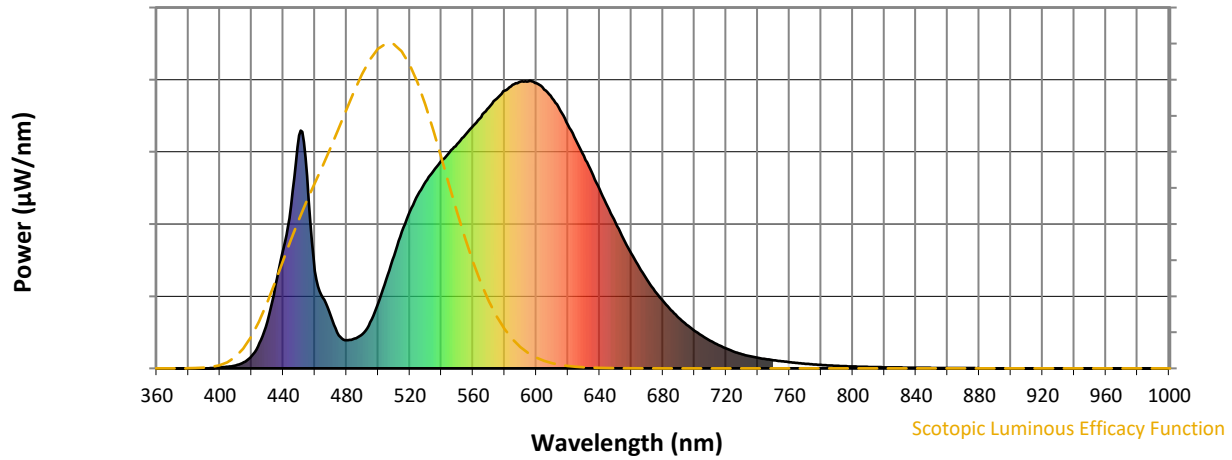


Photopic Lumens: NR

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



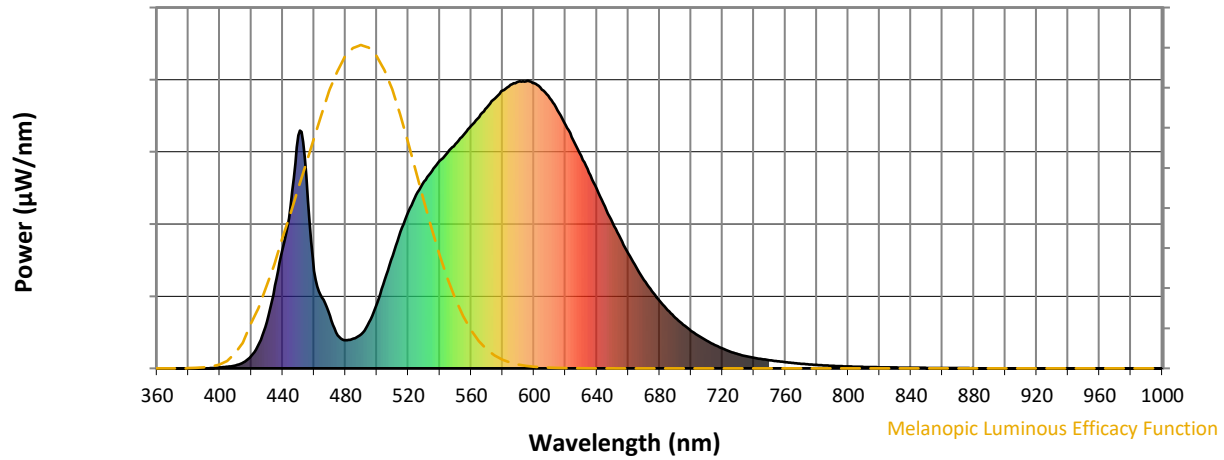
Scotopic Lumens: NR

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



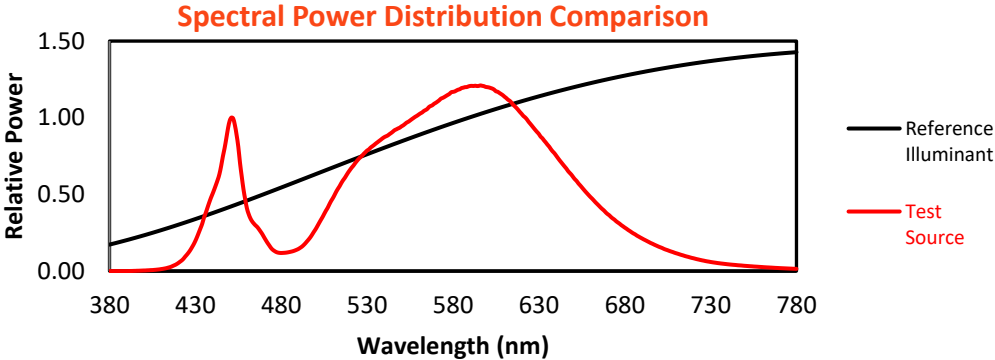
Melanopic Lumens: NR

M/P: 2.47

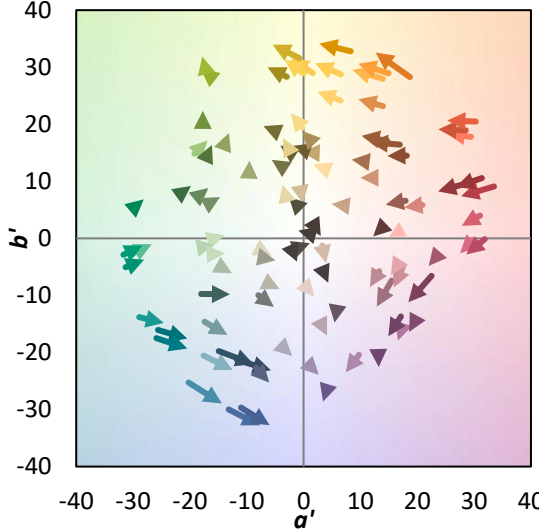
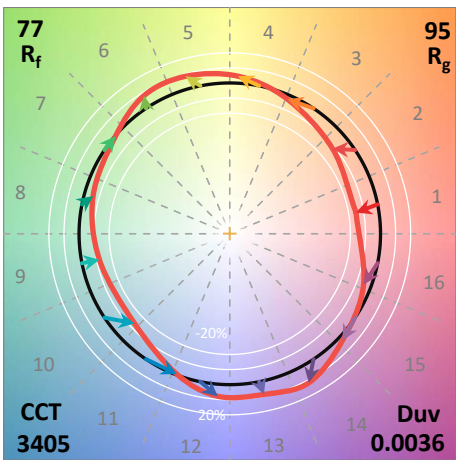
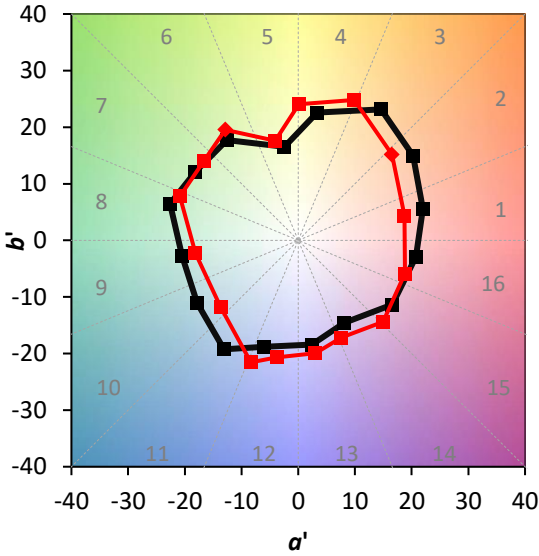
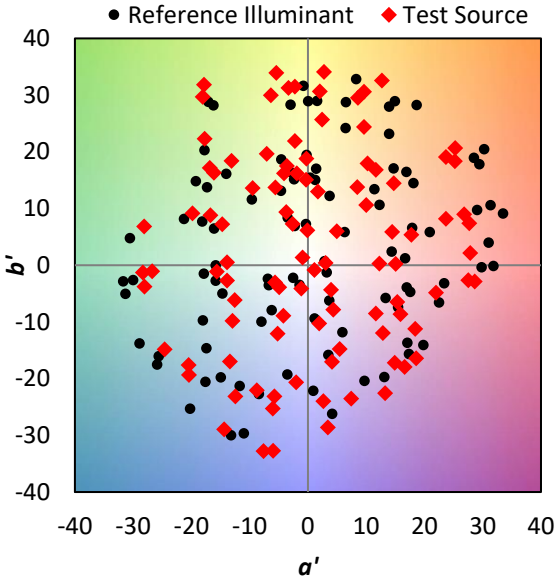
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225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

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

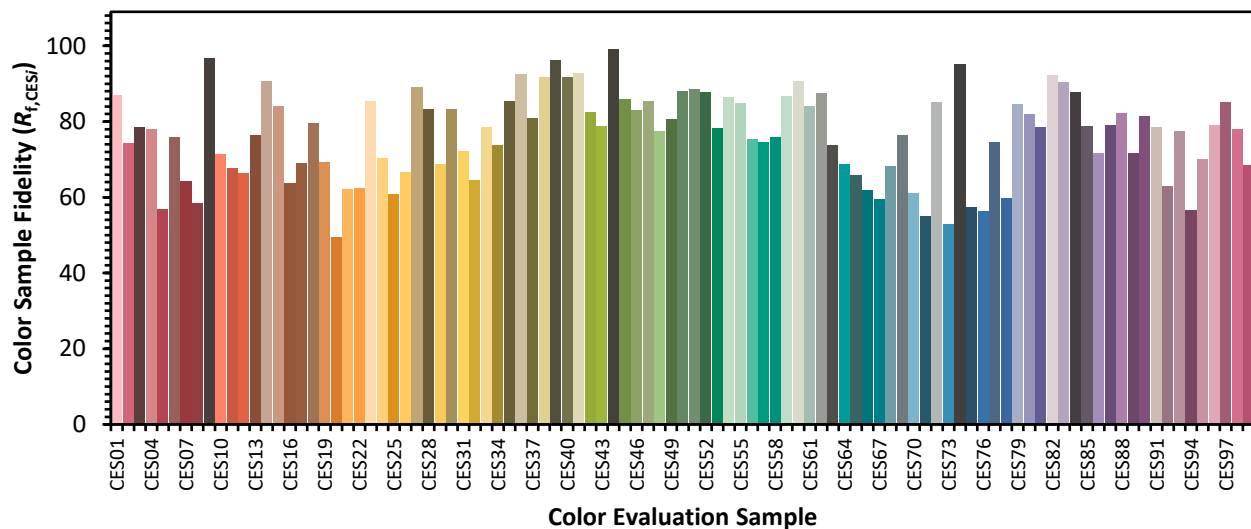


Color Vector Graphics

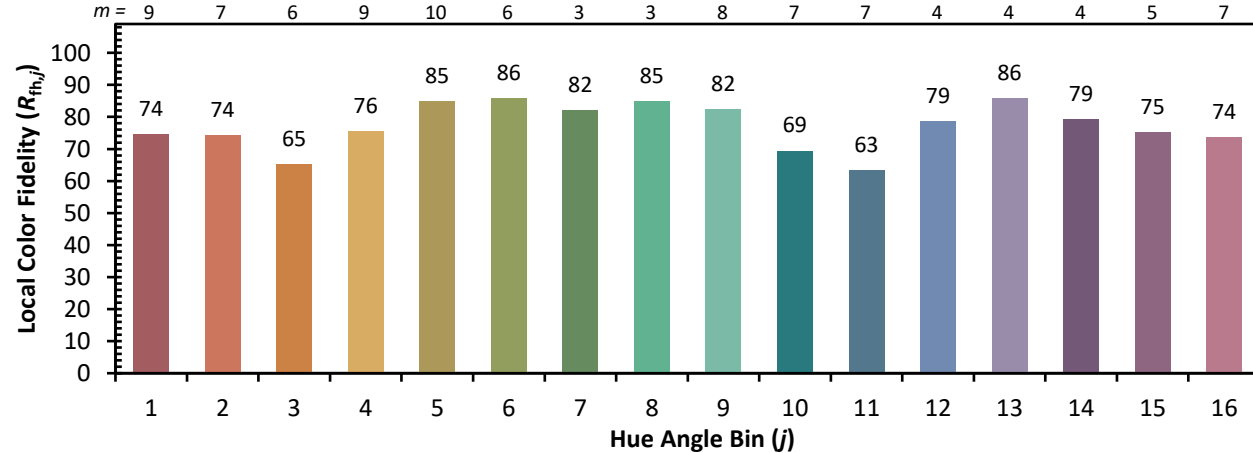
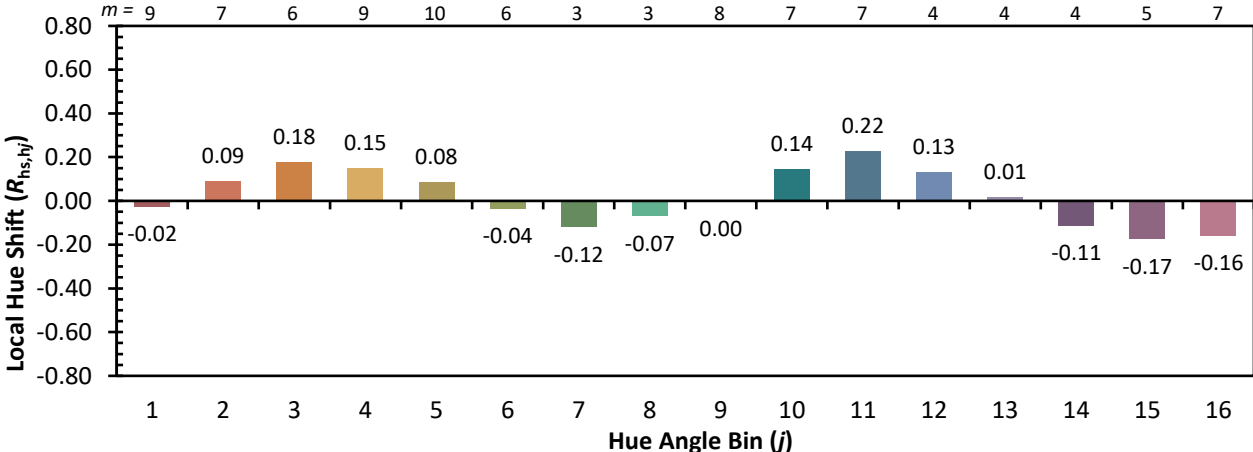
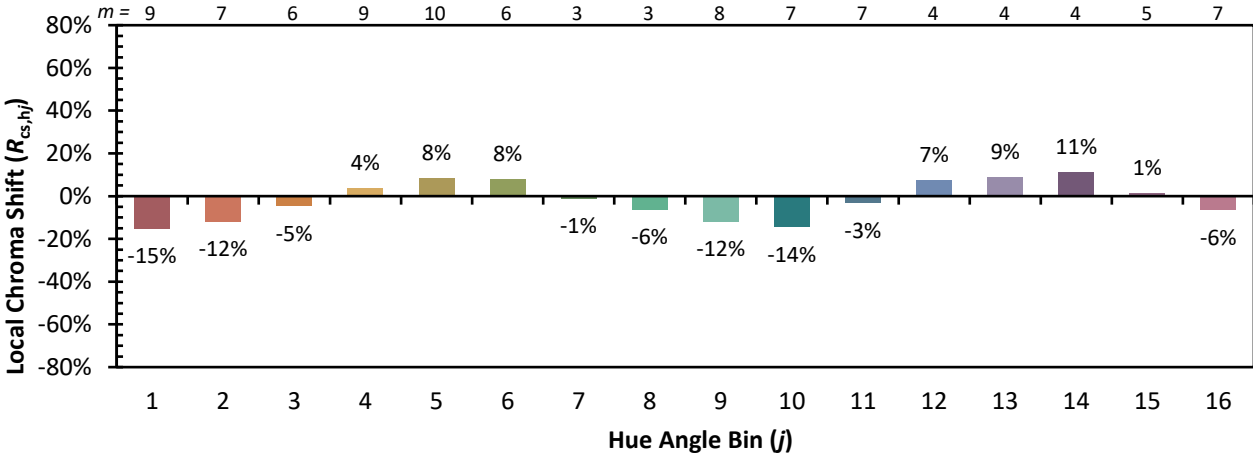


Individual Sample Fidelity Index ($R_{f,i}$)

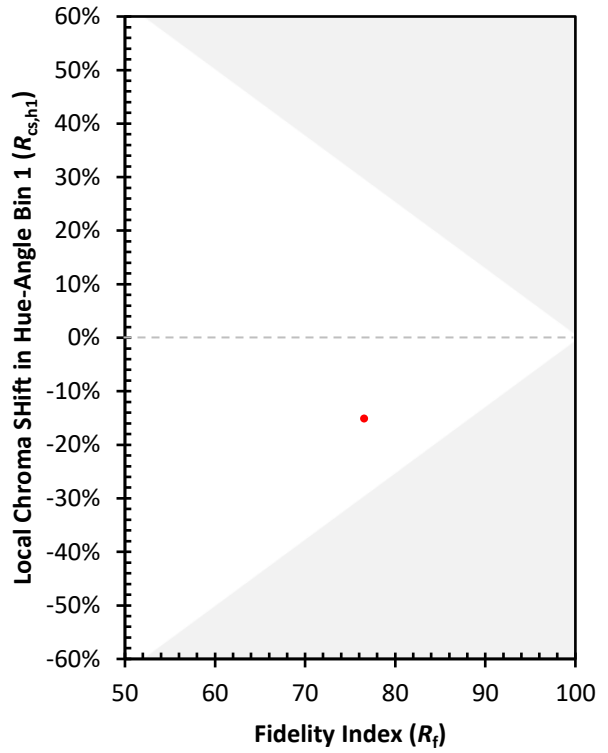
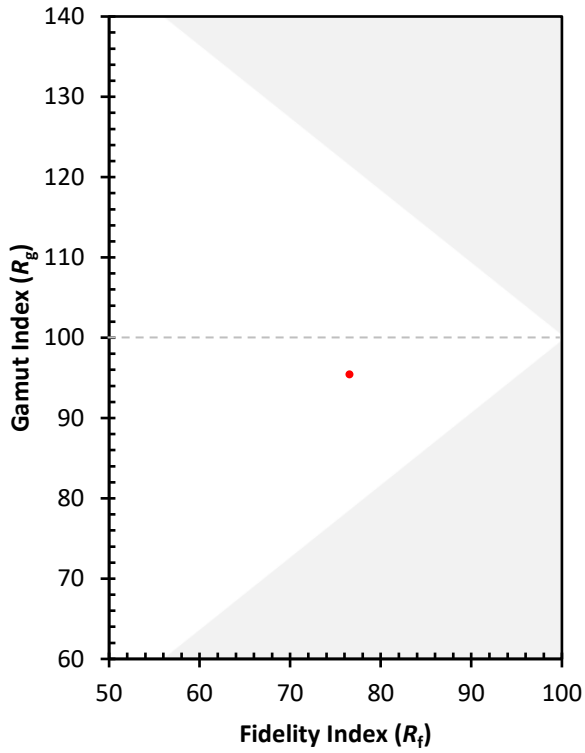
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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