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: P833887

Luminaire Tested: **TTN-D3-735-U-DL-UPL1**

Issue Date: 5/15/2024

Report Generated By 670246001

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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P833887
	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-D3-735-U-DL-UPL1
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:	6623.9 lumens
Efficiency:	N/A
Efficacy:	107.2 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 0.71' x H: 0.1')
IES Classification:	Type IV - Short
BUG Rating:	B1 - U3 - G2

Input Watts (W):	61.8
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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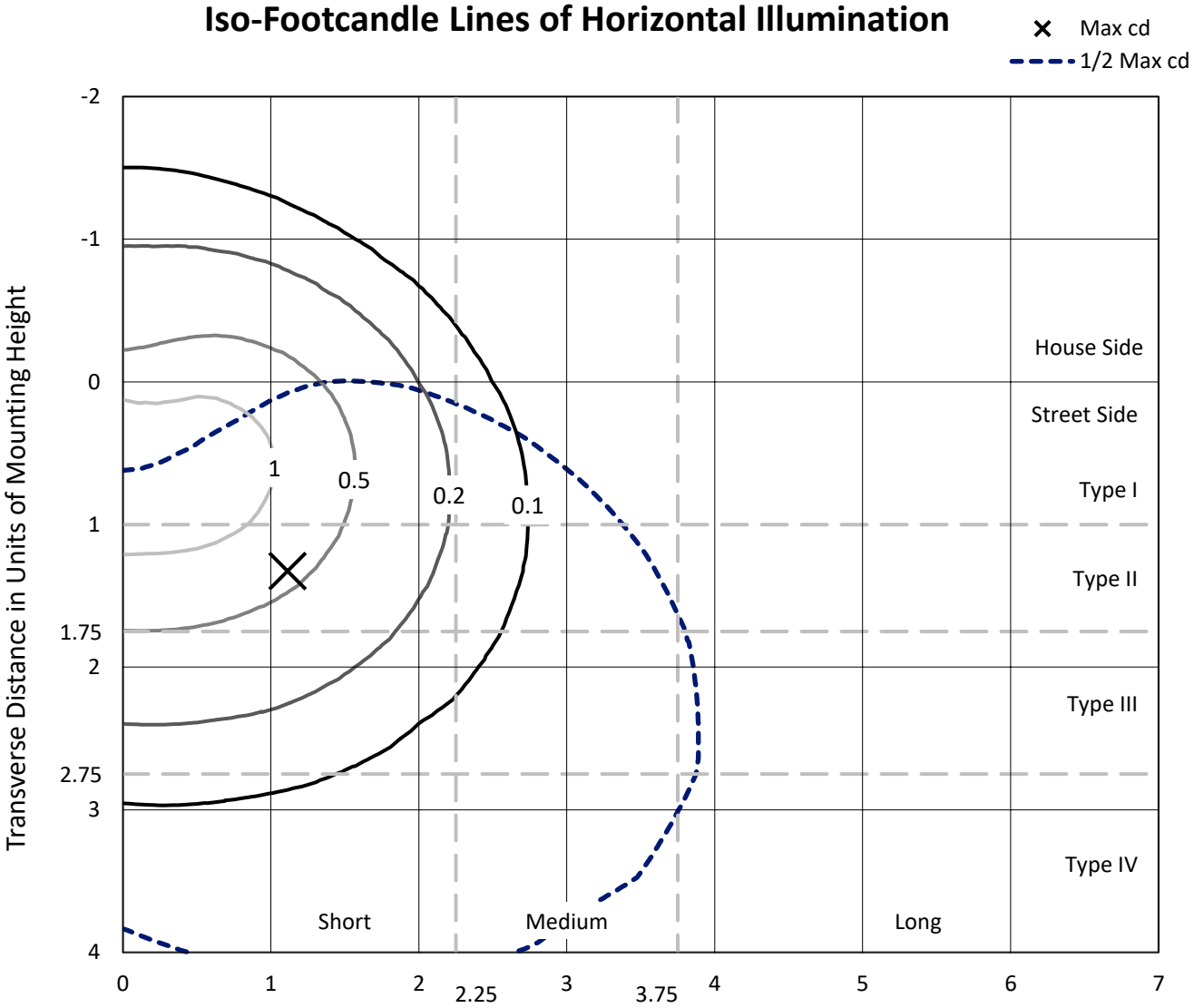
Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 1.4 fc
Type IV - Short - N/A

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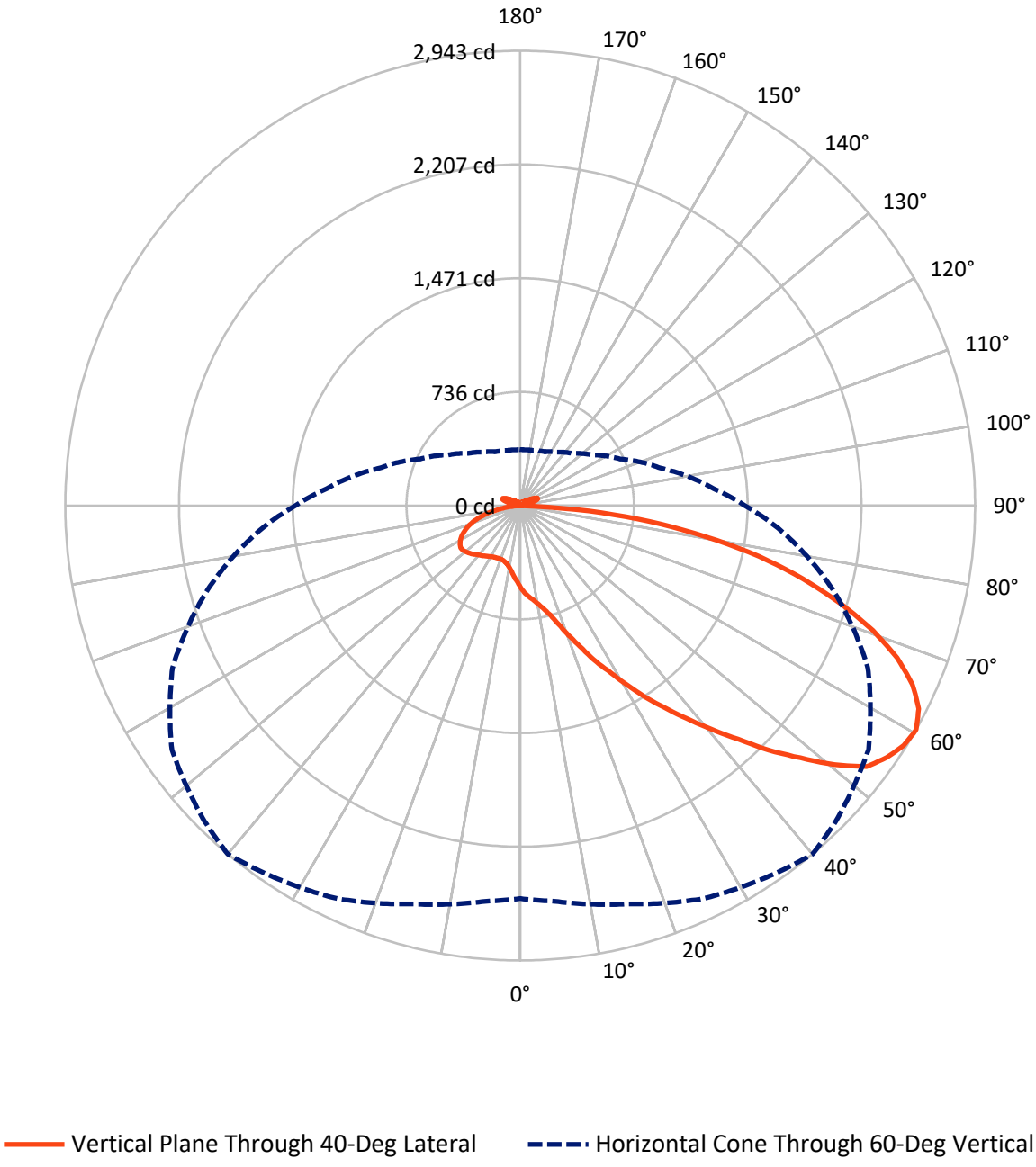
Luminous Intensity Polar Plot



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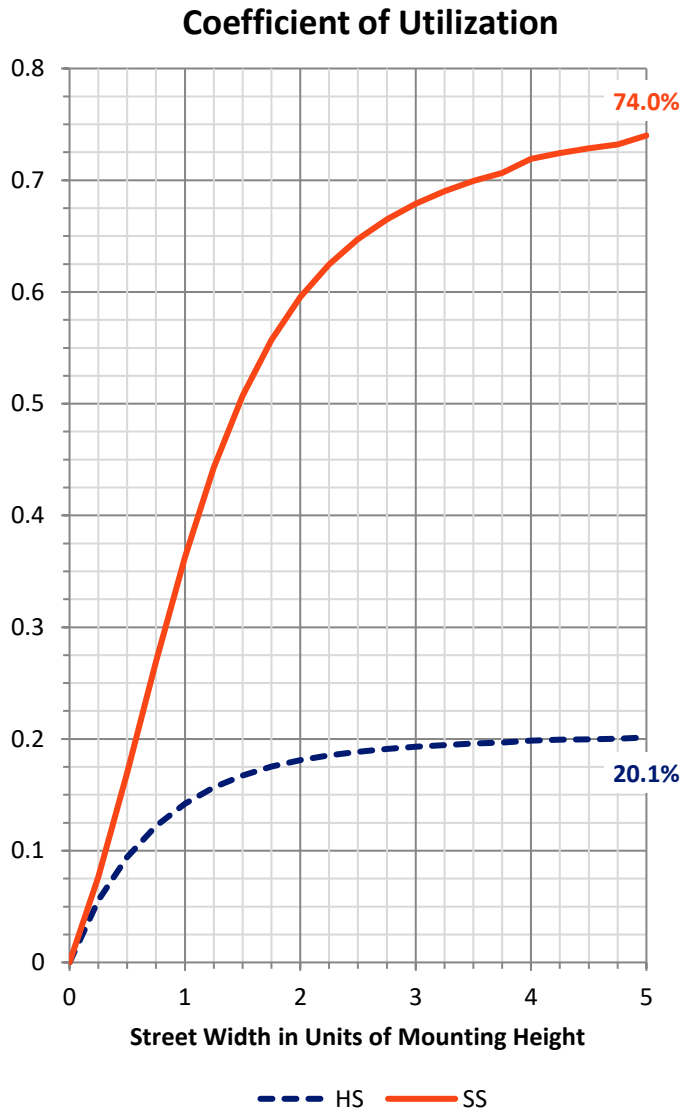
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1346.7	150.2	1496.9
	% Fixture	20.3	2.3	22.6
Street Side	Lumens	4976.7	150.2	5127.0
	% Fixture	75.1	2.3	77.4
Total	Lumens	6323.4	300.5	6623.9
	% Fixture	95.5	4.5	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.2	0.8
10°-20°	160.3	2.4
20°-30°	338.6	5.1
30°-40°	618.8	9.3
40°-50°	1005.6	15.2
50°-60°	1397.7	21.1
60°-70°	1448.9	21.9
70°-80°	1038.2	15.7
80°-90°	265.1	4.0
90°-100°	6.7	0.1
100°-110°	68.2	1.0
110°-120°	99.6	1.5
120°-130°	57.8	0.9
130°-140°	30.6	0.5
140°-150°	18.2	0.3
150°-160°	11.2	0.2
160°-170°	6.1	0.1
170°-180°	2.0	0.0
0°-90°	6323.4	95.5
0°-180°	6623.9	100.0



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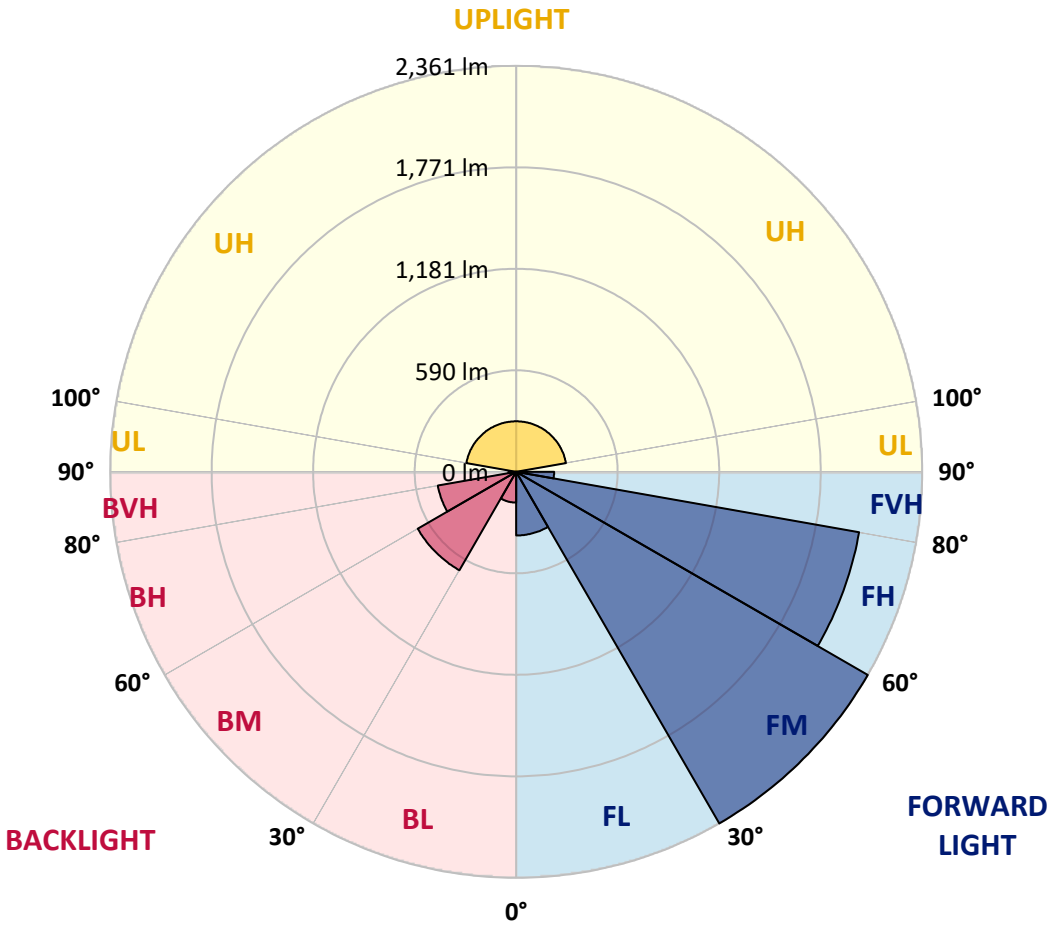
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	370.0	5.6			
FM	(30°-60°)	2361.0	35.6			
FH	(60°-80°)	2025.0	30.6			G2/5000
FVH	(80°-90°)	220.7	3.3			G2/225
BL	(0°-30°)	179.1	2.7	B1/500		
BM	(30°-60°)	661.1	10.0	B1/1000		
BH	(60°-80°)	462.2	7.0	B1/500		G1/500
BVH	(80°-90°)	44.4	0.7			G1/100
UL	(90°-100°)	6.7	0.1		U1/10	
UH	(100°-180°)	293.8	4.4		U3/500	

BUG Rating: B1-U3-G2
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
0°	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5
2.5°	571.0	571.0	571.0	571.0	565.5	565.5	560.0	554.5	549.0	543.5	532.5
5°	620.4	620.4	614.9	609.4	598.4	592.9	587.4	576.5	565.5	554.5	538.0
7.5°	642.3	642.3	642.3	636.8	620.4	614.9	603.9	587.4	571.0	554.5	532.5
10°	680.8	680.8	675.3	669.8	653.3	647.8	636.8	614.9	587.4	560.0	532.5
12.5°	730.2	724.7	719.2	713.7	697.2	686.3	669.8	647.8	614.9	581.9	549.0
15°	790.6	779.6	779.6	768.6	752.1	735.7	724.7	691.7	658.8	614.9	571.0
17.5°	856.4	851.0	845.5	834.5	818.0	807.0	790.6	752.1	708.2	653.3	603.9
20°	938.8	927.8	933.3	916.8	900.4	894.9	867.4	823.5	768.6	708.2	647.8
22.5°	1037.6	1026.6	1026.6	1010.2	999.2	988.2	960.8	911.4	840.0	774.1	697.2
25°	1147.4	1136.4	1136.4	1125.5	1114.5	1103.5	1070.6	1015.7	933.3	851.0	763.1
27.5°	1268.2	1257.2	1257.2	1251.7	1224.3	1207.8	1180.4	1120.0	1037.6	933.3	829.0
30°	1394.5	1383.5	1394.5	1383.5	1367.0	1334.1	1301.1	1235.3	1141.9	1026.6	900.4
32.5°	1493.3	1493.3	1498.8	1509.8	1498.8	1471.3	1432.9	1378.0	1251.7	1109.0	966.3
35°	1608.6	1608.6	1619.6	1636.0	1630.5	1603.1	1564.7	1504.3	1372.5	1202.3	1037.6
37.5°	1734.9	1734.9	1745.8	1773.3	1762.3	1745.8	1718.4	1641.5	1493.3	1295.7	1114.5
40°	1872.1	1866.6	1877.6	1916.0	1921.5	1899.6	1866.6	1789.8	1619.6	1416.4	1196.8
42.5°	2009.4	2003.9	2025.8	2064.3	2069.8	2064.3	2031.3	1943.5	1751.3	1537.2	1279.2
45°	2146.6	2146.6	2179.6	2239.9	2267.4	2256.4	2229.0	2119.2	1916.0	1663.5	1389.0
47.5°	2289.4	2289.4	2333.3	2410.1	2443.1	2437.6	2426.6	2294.8	2075.2	1795.3	1482.3
50°	2399.2	2399.2	2470.5	2558.4	2613.3	2635.2	2580.3	2459.5	2212.5	1910.5	1559.2
52.5°	2509.0	2509.0	2580.3	2717.6	2772.5	2805.4	2734.1	2607.8	2366.2	2014.9	1630.5
55°	2563.9	2574.8	2673.7	2805.4	2893.3	2876.8	2904.2	2734.1	2465.0	2091.7	1674.5
57.5°	2569.3	2585.8	2695.6	2832.9	2931.7	2926.2	2931.7	2778.0	2503.5	2108.2	1680.0
60°	2541.9	2569.3	2668.2	2805.4	2898.8	2942.7	2887.8	2750.5	2481.5	2091.7	1674.5
62.5°	2476.0	2530.9	2635.2	2739.5	2876.8	2893.3	2849.3	2734.1	2421.1	2075.2	1647.0
65°	2327.8	2388.2	2536.4	2657.2	2767.0	2789.0	2739.5	2640.7	2360.7	1998.4	1559.2
67.5°	2179.6	2218.0	2344.3	2530.9	2607.8	2629.7	2613.3	2498.0	2256.4	1844.7	1454.9
70°	2009.4	2058.8	2157.6	2349.7	2426.6	2421.1	2470.5	2338.8	2097.2	1712.9	1345.1
72.5°	1778.8	1850.2	1949.0	2108.2	2201.5	2168.6	2245.4	2135.6	1888.6	1548.2	1196.8
75°	1509.8	1570.2	1696.4	1822.7	1927.0	1888.6	1949.0	1872.1	1647.0	1350.6	1026.6
77.5°	1207.8	1279.2	1394.5	1509.8	1581.1	1581.1	1608.6	1542.7	1367.0	1109.0	840.0
80°	894.9	960.8	1065.1	1147.4	1213.3	1218.8	1246.2	1213.3	1054.1	861.9	642.3
82.5°	592.9	625.9	719.2	785.1	851.0	845.5	889.4	867.4	735.7	592.9	428.2
85°	252.5	274.5	351.4	406.3	466.7	444.7	505.1	499.6	395.3	285.5	192.2
87.5°	11.0	16.5	16.5	11.0	16.5	5.5	16.5	22.0	16.5	11.0	11.0
90°	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.6
92.5°	2.6	2.6	2.6	3.6	4.1	3.8	3.6	4.1	3.1	3.1	2.6
95°	3.1	3.1	3.6	4.6	5.7	6.0	6.2	6.2	3.6	3.6	3.1
97.5°	4.1	4.6	4.6	5.7	9.3	13.2	17.0	10.3	5.1	5.1	4.6
100°	6.7	7.2	7.2	12.9	27.2	31.8	36.5	26.2	13.4	9.8	7.2
102.5°	21.6	22.6	27.8	41.6	61.7	58.8	56.0	47.3	44.7	30.8	24.7
105°	55.0	54.5	58.6	69.4	86.4	85.6	84.8	78.1	70.9	61.2	56.5
107.5°	72.5	72.5	76.1	85.3	98.2	106.4	114.6	116.2	92.0	80.7	75.6
110°	81.7	81.7	84.8	92.5	109.5	121.0	132.6	131.6	113.6	99.7	93.0

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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	40°	45°	55°	65°	75°	85°
112.5°	83.8	84.3	88.4	100.2	118.7	*123.8*	129.0	124.4	117.2	111.0	105.9
115°	86.9	86.9	91.5	102.8	113.1	*115.2*	117.2	112.1	106.4	102.3	100.2
117.5°	85.8	87.4	88.4	94.6	101.3	*102.8*	104.4	101.8	94.1	91.0	90.0
120°	79.7	79.7	80.7	83.8	87.4	*88.2*	88.9	87.9	82.8	80.2	79.7
122.5°	70.9	71.5	70.9	72.5	75.0	*75.8*	76.6	75.6	71.5	70.4	70.4
125°	62.2	62.2	61.7	62.7	64.3	*64.0*	63.7	64.3	62.2	61.7	61.7
127.5°	56.0	55.5	54.5	55.0	55.5	*55.5*	55.5	56.0	54.0	54.5	55.0
130°	49.9	49.9	48.8	48.8	48.8	*48.3*	47.8	48.8	47.8	48.3	48.8
132.5°	44.2	44.2	42.7	42.2	42.2	*42.2*	42.2	42.7	42.2	43.2	44.2
135°	39.6	39.6	38.0	38.6	38.6	*38.3*	38.0	38.6	38.0	39.1	39.6
137.5°	36.0	36.0	35.0	35.0	35.0	*34.7*	34.4	35.0	35.0	35.5	36.5
140°	32.9	32.9	32.4	32.4	31.9	*32.2*	32.4	32.4	32.4	32.9	33.4
142.5°	31.4	30.8	30.3	29.8	30.3	*30.3*	30.3	30.3	29.8	30.3	31.4
145°	28.8	28.8	28.3	28.3	28.3	*28.6*	28.8	28.3	28.3	28.8	28.8
147.5°	27.2	27.2	26.7	27.2	27.2	*27.2*	27.2	27.2	26.7	27.2	27.2
150°	26.7	26.2	25.7	26.2	26.2	*26.0*	25.7	25.7	25.7	25.7	26.2
152.5°	25.2	25.2	24.7	25.2	24.7	*24.7*	24.7	24.7	24.7	24.7	25.2
155°	24.2	24.2	23.6	24.2	24.2	*24.2*	24.2	24.2	24.2	24.2	24.2
157.5°	23.1	23.6	23.1	23.1	23.1	*23.1*	23.1	23.1	23.1	23.1	23.6
160°	22.6	22.6	22.6	22.6	22.1	*22.1*	22.1	22.1	22.6	22.6	22.6
162.5°	22.1	22.1	22.1	22.1	21.6	*21.6*	21.6	21.6	21.6	22.1	22.1
165°	22.1	21.6	21.6	21.6	21.1	*21.1*	21.1	21.1	21.1	21.6	22.1
167.5°	21.1	21.1	21.1	21.1	21.1	*20.8*	20.6	20.6	21.1	21.1	21.1
170°	21.1	21.1	20.6	20.6	20.6	*20.6*	20.6	20.6	20.6	20.6	20.6
172.5°	21.1	21.1	21.1	21.1	20.6	*20.6*	20.6	20.6	20.6	20.6	21.1
175°	21.1	21.1	21.1	21.1	20.6	*20.6*	20.6	20.6	21.1	21.1	21.1
177.5°	21.1	21.1	21.1	21.1	20.6	*20.8*	21.1	21.1	21.1	21.1	21.1
180°	21.1	21.1	21.1	21.1	21.1	*21.1*	21.1	21.1	21.1	21.1	21.1

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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5	532.5
2.5°	532.5	527.0	516.1	510.6	505.1	494.1	494.1	488.6	488.6	488.6	483.1
5°	532.5	521.6	510.6	494.1	483.1	472.1	461.2	450.2	444.7	444.7	439.2
7.5°	521.6	510.6	494.1	477.6	461.2	439.2	428.2	406.3	400.8	395.3	395.3
10°	521.6	510.6	483.1	461.2	439.2	417.2	400.8	378.8	362.3	356.9	356.9
12.5°	527.0	510.6	483.1	455.7	428.2	400.8	378.8	356.9	340.4	329.4	329.4
15°	549.0	527.0	494.1	455.7	422.7	389.8	367.8	340.4	323.9	312.9	312.9
17.5°	576.5	554.5	505.1	461.2	422.7	384.3	356.9	329.4	312.9	302.0	296.5
20°	614.9	581.9	527.0	466.7	422.7	384.3	351.4	323.9	302.0	291.0	291.0
22.5°	658.8	620.4	549.0	477.6	428.2	384.3	351.4	318.4	296.5	285.5	285.5
25°	713.7	664.3	581.9	499.6	439.2	389.8	351.4	318.4	296.5	285.5	285.5
27.5°	774.1	719.2	614.9	521.6	450.2	395.3	351.4	318.4	296.5	285.5	285.5
30°	829.0	768.6	647.8	543.5	466.7	400.8	356.9	323.9	302.0	291.0	285.5
32.5°	889.4	812.5	680.8	565.5	477.6	411.8	362.3	329.4	302.0	291.0	291.0
35°	949.8	867.4	713.7	592.9	494.1	422.7	367.8	334.9	307.4	296.5	296.5
37.5°	1015.7	927.8	752.1	614.9	510.6	433.7	378.8	340.4	312.9	302.0	302.0
40°	1092.5	988.2	790.6	642.3	527.0	444.7	384.3	351.4	323.9	312.9	312.9
42.5°	1163.9	1043.1	829.0	664.3	543.5	455.7	395.3	356.9	334.9	323.9	323.9
45°	1235.3	1109.0	867.4	691.7	560.0	472.1	406.3	373.3	345.9	334.9	334.9
47.5°	1317.6	1169.4	911.4	713.7	576.5	483.1	417.2	384.3	356.9	351.4	345.9
50°	1383.5	1213.3	938.8	735.7	587.4	494.1	428.2	389.8	367.8	356.9	356.9
52.5°	1443.9	1257.2	960.8	746.6	592.9	499.6	439.2	400.8	378.8	367.8	367.8
55°	1476.8	1273.7	977.2	746.6	598.4	505.1	439.2	400.8	378.8	373.3	367.8
57.5°	1476.8	1273.7	966.3	735.7	587.4	494.1	433.7	395.3	378.8	367.8	367.8
60°	*1454.9*	*1257.2*	*938.8*	*713.7*	*571.0*	*477.6*	*422.7*	*384.3*	*367.8*	*362.3*	*362.3*
62.5°	1421.9	1229.8	916.8	686.3	549.0	455.7	406.3	367.8	356.9	356.9	351.4
65°	1334.1	1147.4	867.4	647.8	516.1	428.2	384.3	351.4	340.4	334.9	329.4
67.5°	1240.8	1070.6	790.6	603.9	472.1	400.8	356.9	329.4	312.9	312.9	307.4
70°	1147.4	988.2	719.2	543.5	422.7	367.8	323.9	296.5	285.5	285.5	285.5
72.5°	1021.2	883.9	636.8	477.6	373.3	323.9	291.0	263.5	258.0	258.0	252.5
75°	872.9	752.1	538.0	406.3	312.9	274.5	247.1	219.6	219.6	219.6	219.6
77.5°	713.7	609.4	428.2	323.9	247.1	219.6	203.1	181.2	181.2	181.2	181.2
80°	538.0	450.2	312.9	236.1	181.2	159.2	148.2	137.3	142.7	142.7	137.3
82.5°	351.4	296.5	197.6	148.2	115.3	104.3	104.3	93.3	98.8	98.8	98.8
85°	153.7	131.8	82.4	65.9	54.9	54.9	54.9	49.4	54.9	54.9	54.9
87.5°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	0.0	5.5	11.0	5.5
90°	2.6	2.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.6	2.6
92.5°	2.6	2.6	3.1	3.1	4.1	3.6	4.1	3.6	2.6	2.6	2.6
95°	3.1	3.1	3.6	3.6	6.2	6.2	5.7	4.6	3.6	3.1	3.1
97.5°	4.1	4.6	5.1	5.1	10.3	17.0	9.3	5.7	4.6	4.6	4.1
100°	7.2	7.2	9.8	13.4	26.2	36.5	27.2	12.9	7.2	7.2	6.7
102.5°	23.6	24.7	30.8	44.7	47.3	56.0	61.7	41.6	27.8	22.6	21.6
105°	56.5	56.5	61.2	70.9	78.1	84.8	86.4	69.4	58.6	54.5	55.0
107.5°	75.0	75.6	80.7	92.0	116.2	114.6	98.2	85.3	76.1	72.5	72.5
110°	92.0	93.0	99.7	113.6	131.6	132.6	109.5	92.5	84.8	81.7	81.7

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P833887
CATALOG NUMBER: TTN-D3-735-U-DL-UPL1

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	104.9	105.9	111.0	117.2	124.4	129.0	118.7	100.2	88.4	84.3	83.8
115°	101.3	100.2	102.3	106.4	112.1	117.2	113.1	102.8	91.5	86.9	86.9
117.5°	88.4	90.0	91.0	94.1	101.8	104.4	101.3	94.6	88.4	87.4	85.8
120°	78.6	79.7	80.2	82.8	87.9	88.9	87.4	83.8	80.7	79.7	79.7
122.5°	69.4	70.4	70.4	71.5	75.6	76.6	75.0	72.5	70.9	71.5	70.9
125°	61.2	61.7	61.7	62.2	64.3	63.7	64.3	62.7	61.7	62.2	62.2
127.5°	54.5	55.0	54.5	54.0	56.0	55.5	55.5	55.0	54.5	55.5	56.0
130°	49.3	48.8	48.3	47.8	48.8	47.8	48.8	48.8	48.8	49.9	49.9
132.5°	44.2	44.2	43.2	42.2	42.7	42.2	42.2	42.2	42.7	44.2	44.2
135°	39.6	39.6	39.1	38.0	38.6	38.0	38.6	38.6	38.0	39.6	39.6
137.5°	37.0	36.5	35.5	35.0	35.0	34.4	35.0	35.0	35.0	36.0	36.0
140°	33.4	33.4	32.9	32.4	32.4	32.4	31.9	32.4	32.4	32.9	32.9
142.5°	31.4	31.4	30.3	29.8	30.3	30.3	30.3	29.8	30.3	30.8	31.4
145°	29.3	28.8	28.8	28.3	28.3	28.8	28.3	28.3	28.3	28.8	28.8
147.5°	27.8	27.2	27.2	26.7	27.2	27.2	27.2	27.2	26.7	27.2	27.2
150°	26.2	26.2	25.7	25.7	25.7	25.7	26.2	26.2	25.7	26.2	26.7
152.5°	25.7	25.2	24.7	24.7	24.7	24.7	24.7	25.2	24.7	25.2	25.2
155°	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	23.6	24.2	24.2
157.5°	23.6	23.6	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.6	23.1
160°	23.1	22.6	22.6	22.6	22.1	22.1	22.1	22.6	22.6	22.6	22.6
162.5°	22.6	22.1	22.1	21.6	21.6	21.6	21.6	22.1	22.1	22.1	22.1
165°	21.6	22.1	21.6	21.1	21.1	21.1	21.1	21.6	21.6	21.6	22.1
167.5°	21.6	21.1	21.1	21.1	20.6	20.6	21.1	21.1	21.1	21.1	21.1
170°	21.1	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	21.1	21.1
172.5°	21.1	21.1	20.6	20.6	20.6	20.6	20.6	21.1	21.1	21.1	21.1
175°	20.6	21.1	21.1	21.1	20.6	20.6	20.6	21.1	21.1	21.1	21.1
177.5°	21.1	21.1	21.1	21.1	21.1	21.1	20.6	21.1	21.1	21.1	21.1
180°	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.1

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

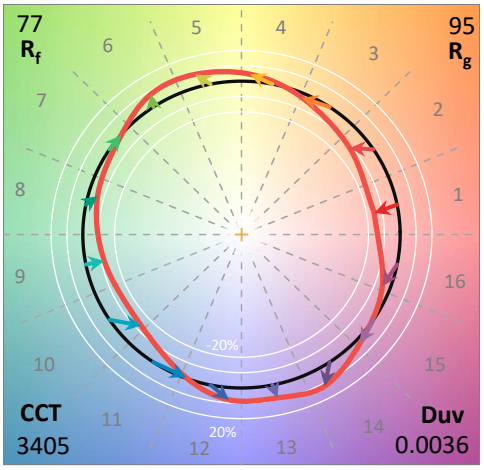
Test Information

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



Test Conditions

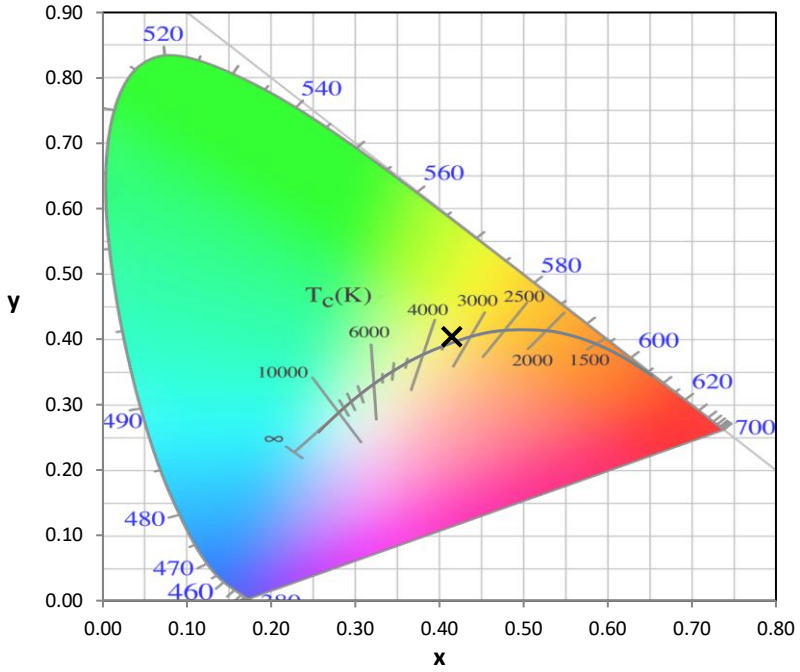
Stabilization Time:	38M
Operation Time:	1H 38M
Sphere Temperature (°C):	24.9

REPORT NUMBER: SP1-2411-284-1

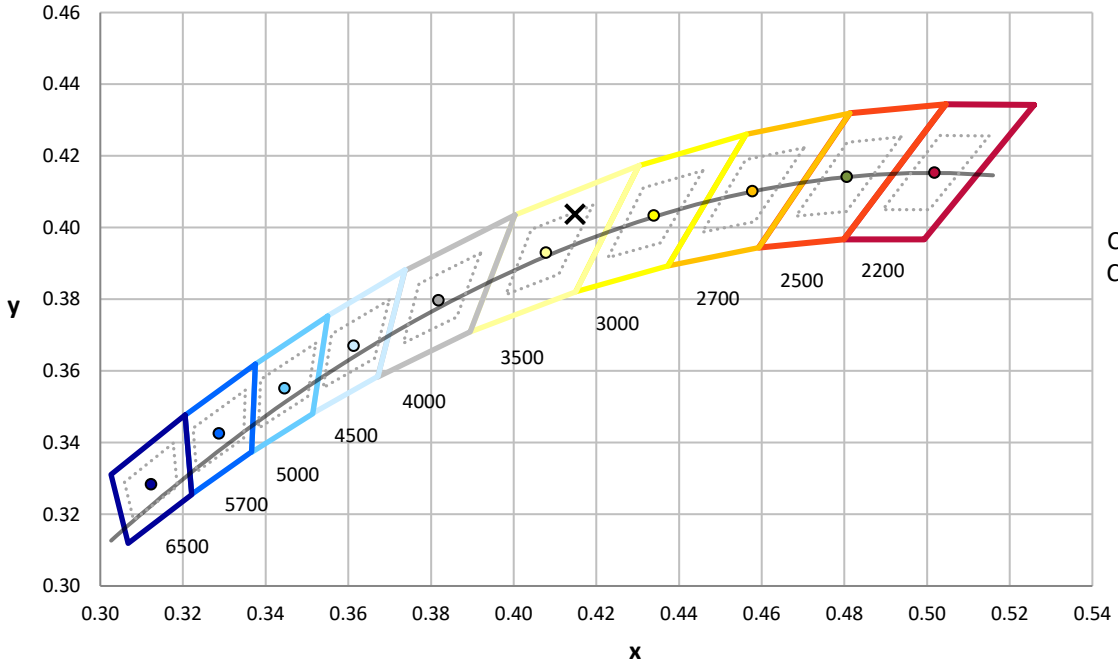
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

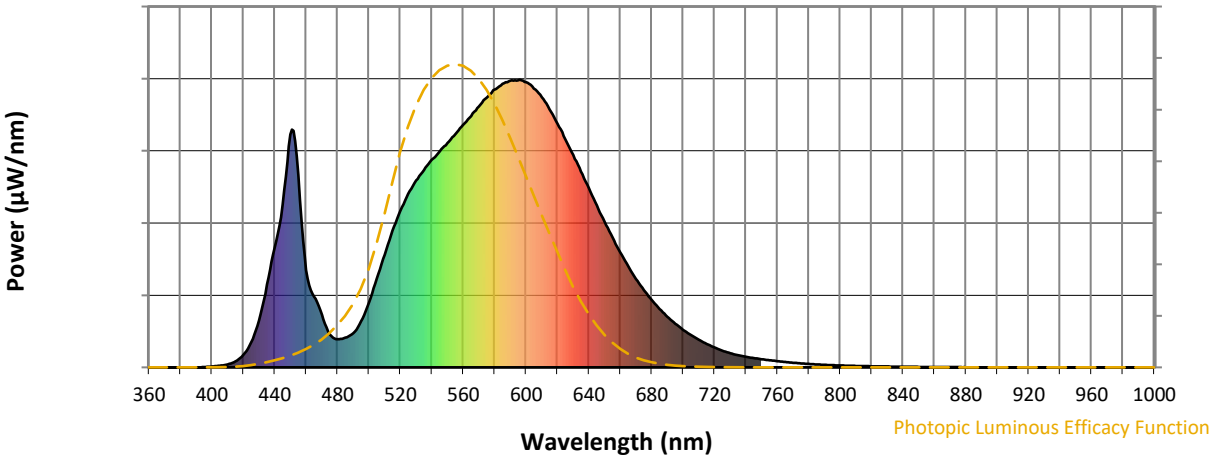


CCT = 3405K
CIE x = 0.4148
CIE y = 0.4038
Duv = 0.0036

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

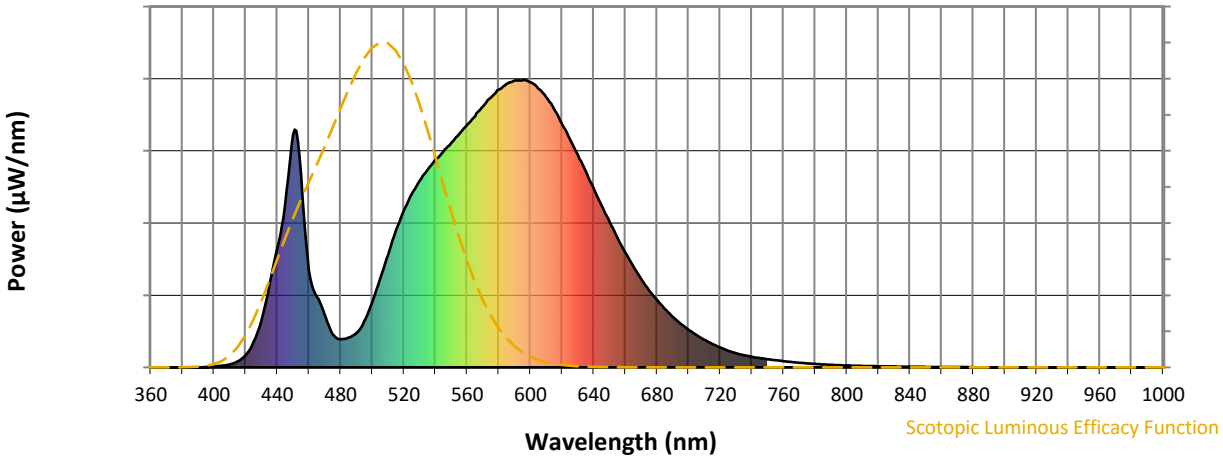


Photopic Lumens: NR

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

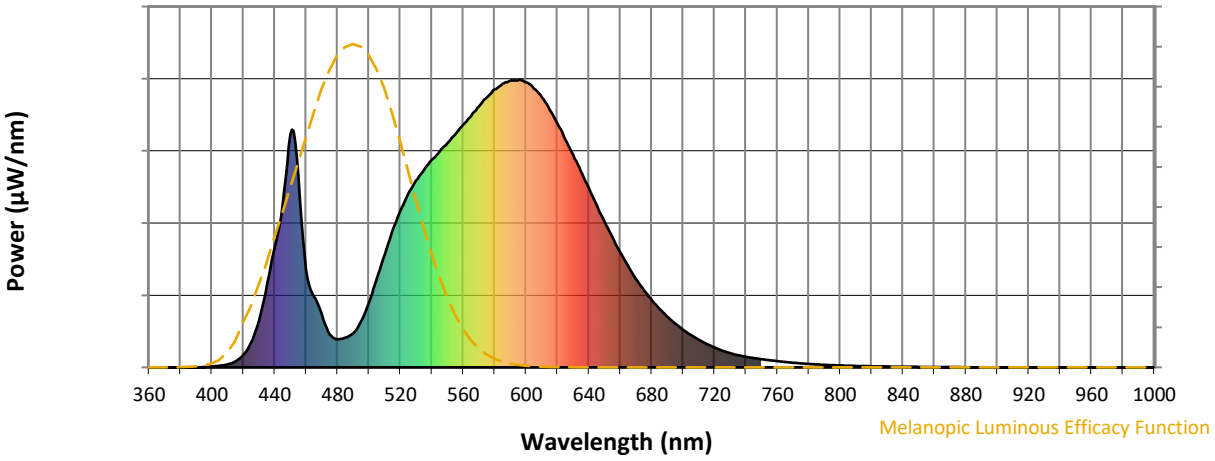


Scotopic Lumens: NR **S/P: 1.33**

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			

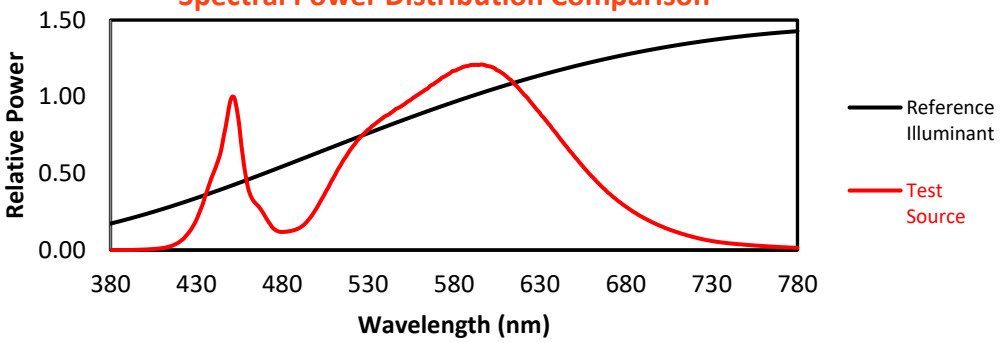
REPORT NUMBER: SP1-2411-284-1

TM-30-18

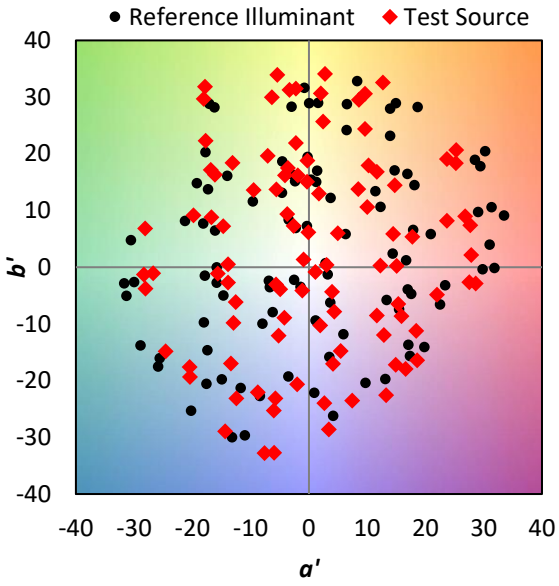
Summary

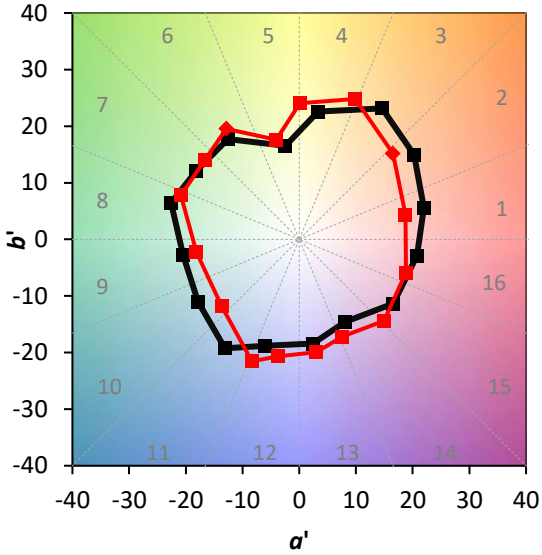
R_f = 76.6
R_g = 95.4
CIE R_a = 73.9
R_9 = -18.0

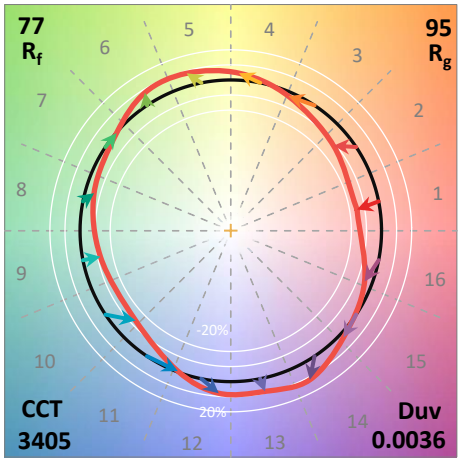
Spectral Power Distribution Comparison

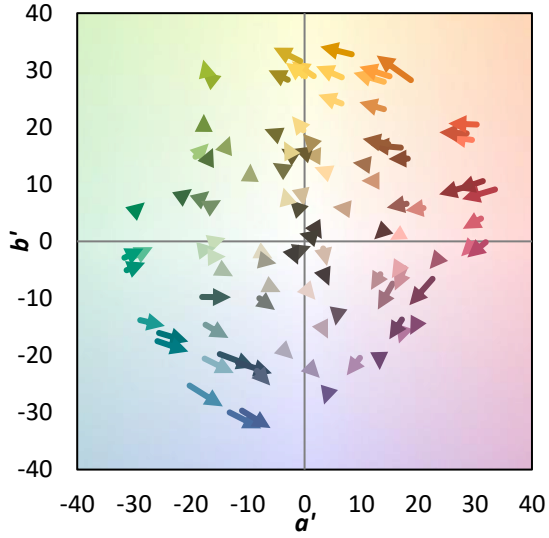


Color Vector Graphics







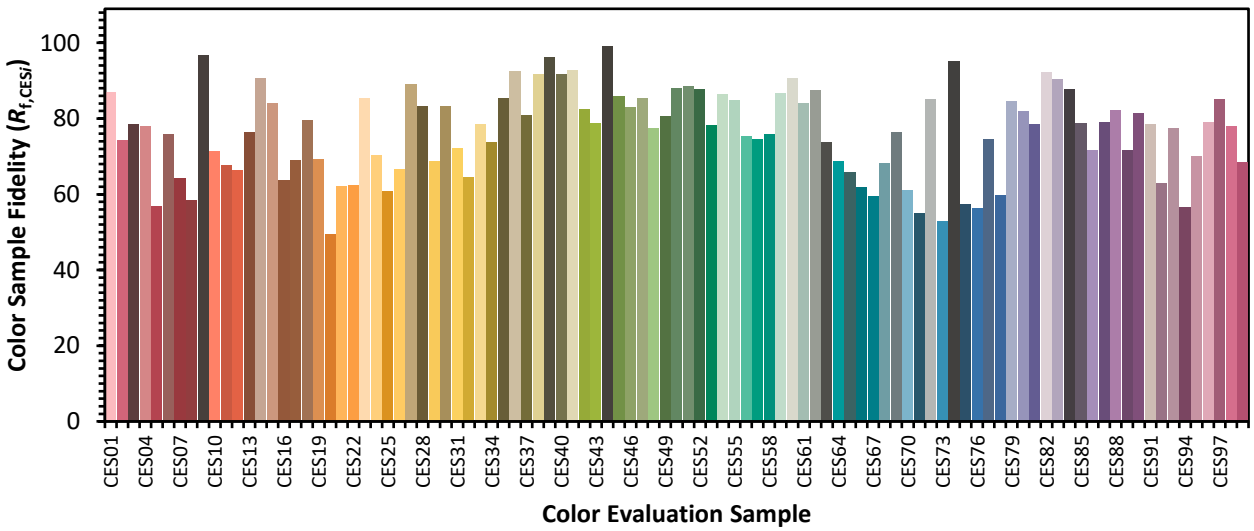


REPORT NUMBER: SP1-2411-284-1

TM-30-18

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

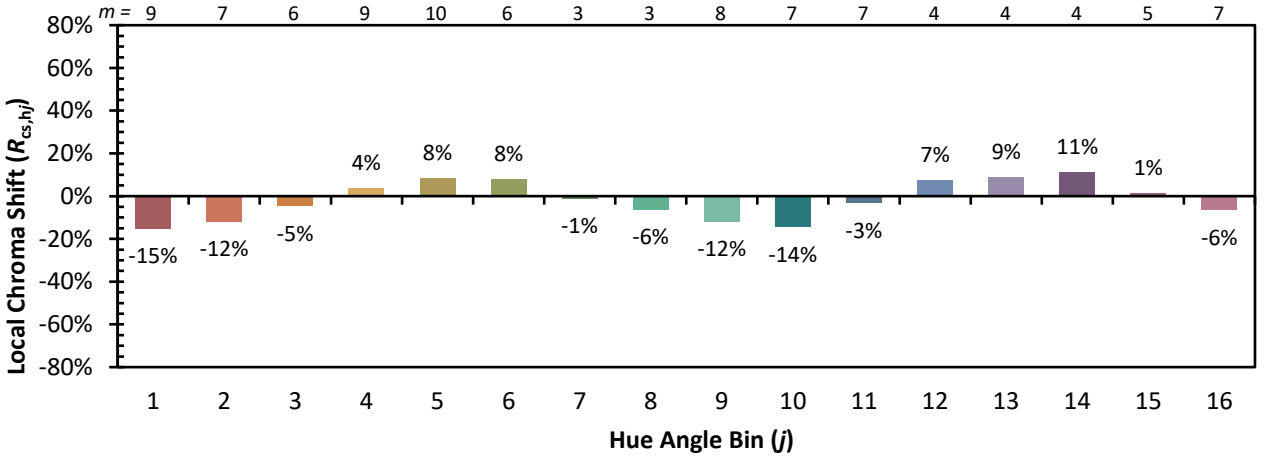
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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

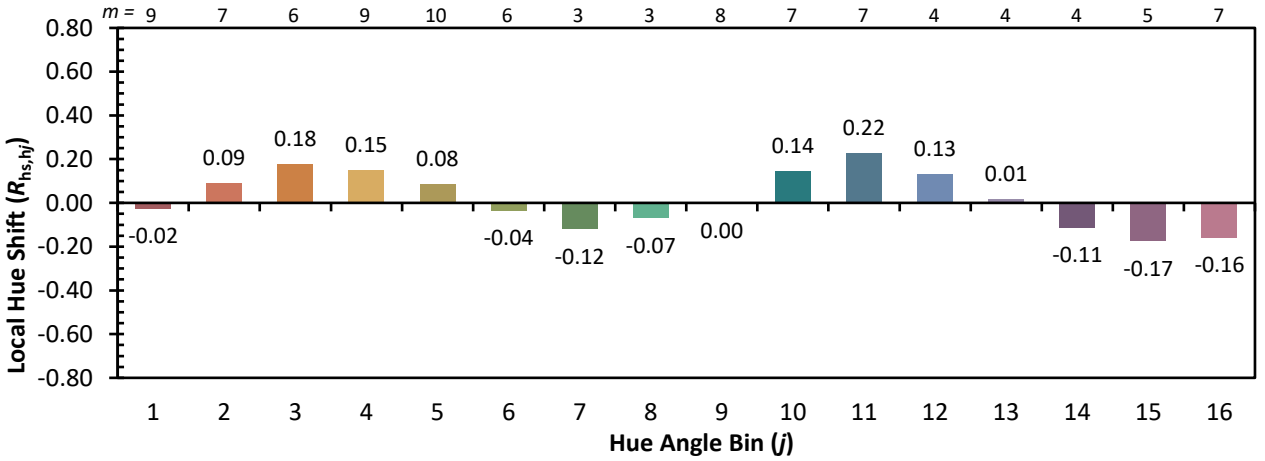


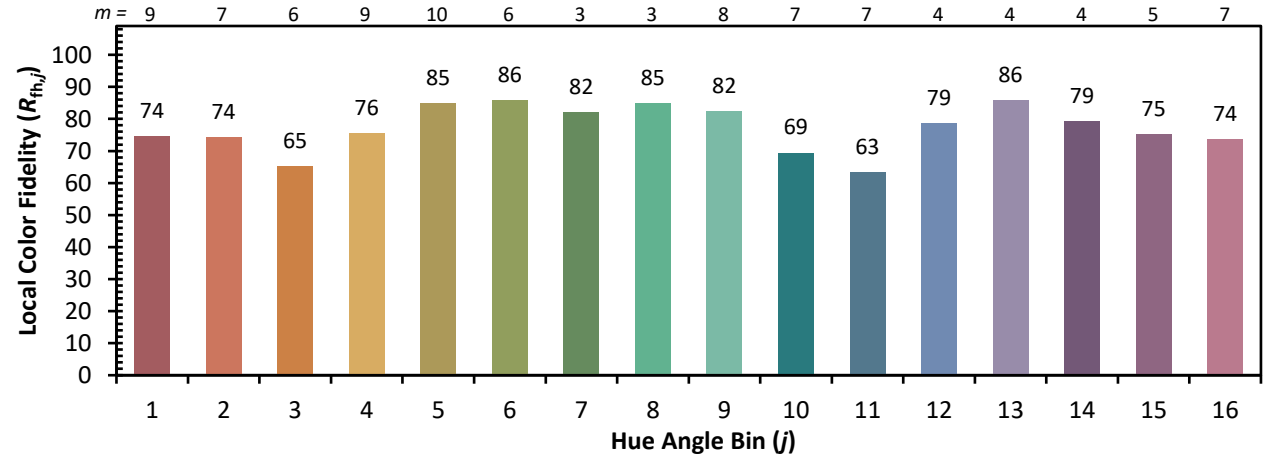
REPORT NUMBER: SP1-2411-284-1

TM-30-18

Color Rendition by Hue-Angle Bin







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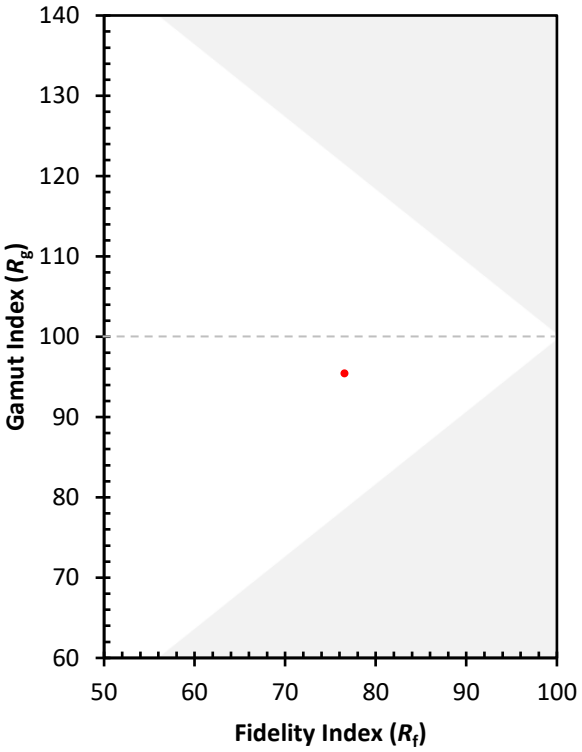
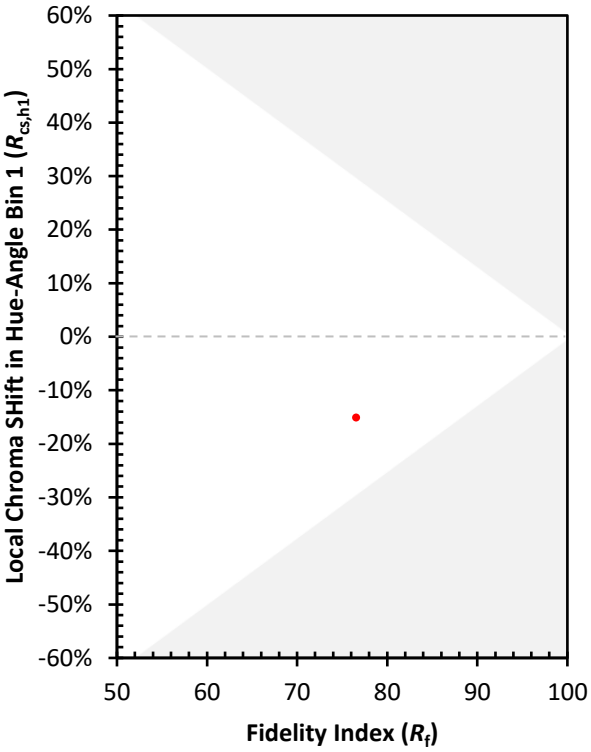
Measure Comparisons





(END OF REPORT)