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: P406327

Luminaire Tested: **TT-D2-735-U-DL-UPL**

Issue Date: 7/23/2020

Report Generated By E9812814

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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P406327
	REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G2-2002-677-2) AND
Test Lab:	INNOVATION CENTER
Issue Date:	7/23/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D2-735-U-DL-UPL
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
	3500K, 70 CRI LEDS AND DRIVE LANE DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5065.7 lumens
Efficiency:	N/A
Efficacy:	104.4 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 1.12' x H: 0.1')
IES Classification:	Type IV - Short - Non-Cutoff
BUG Rating:	B2 - U4 - G3

Input Watts (W):	48.5
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:	28.75 FT

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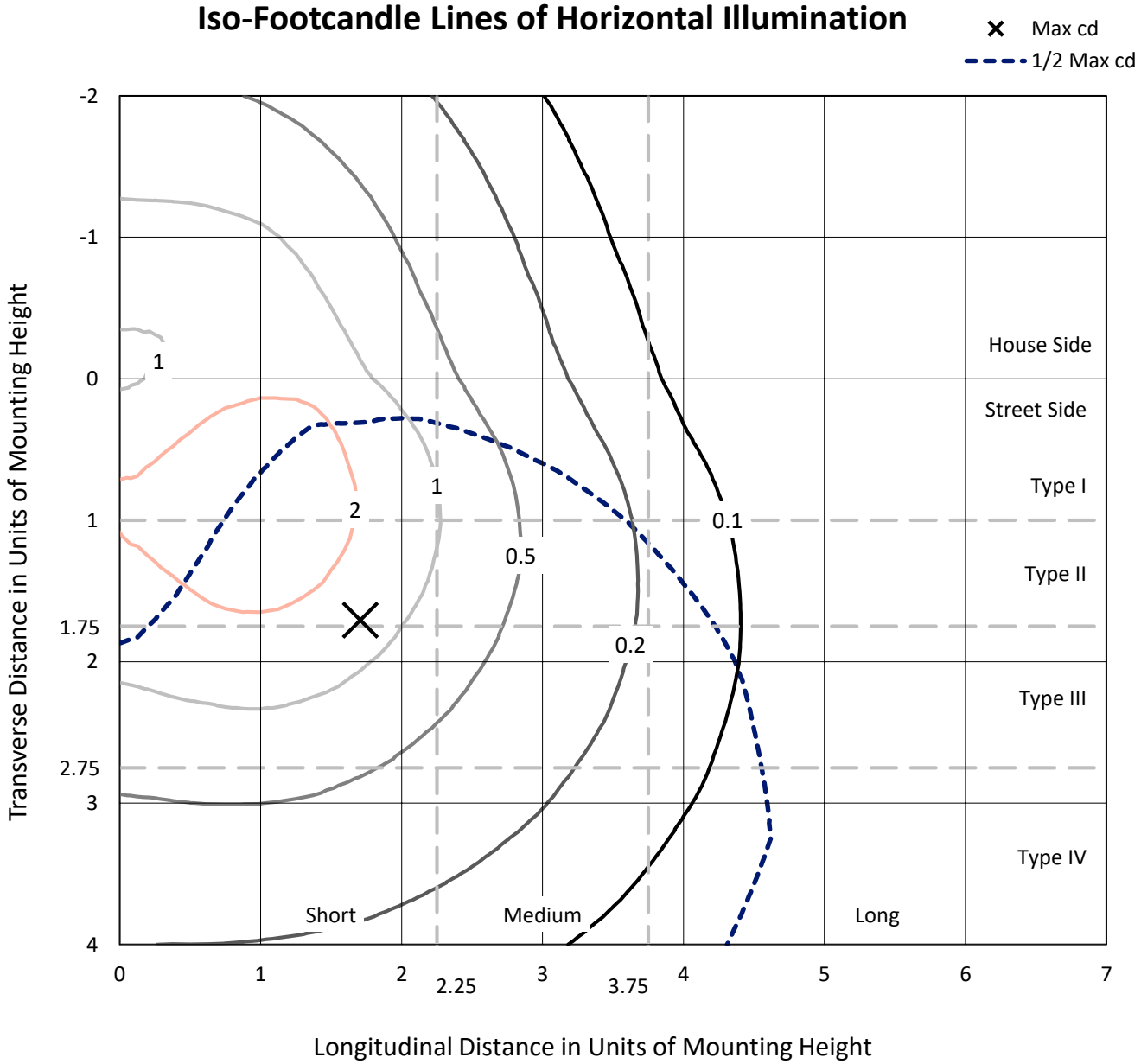
Iso-Footcandle Lines of Horizontal Illumination



Based on 10 foot mounting height. Maximum calculated value = 3.2 fc
Type IV - Short - Non-Cutoff

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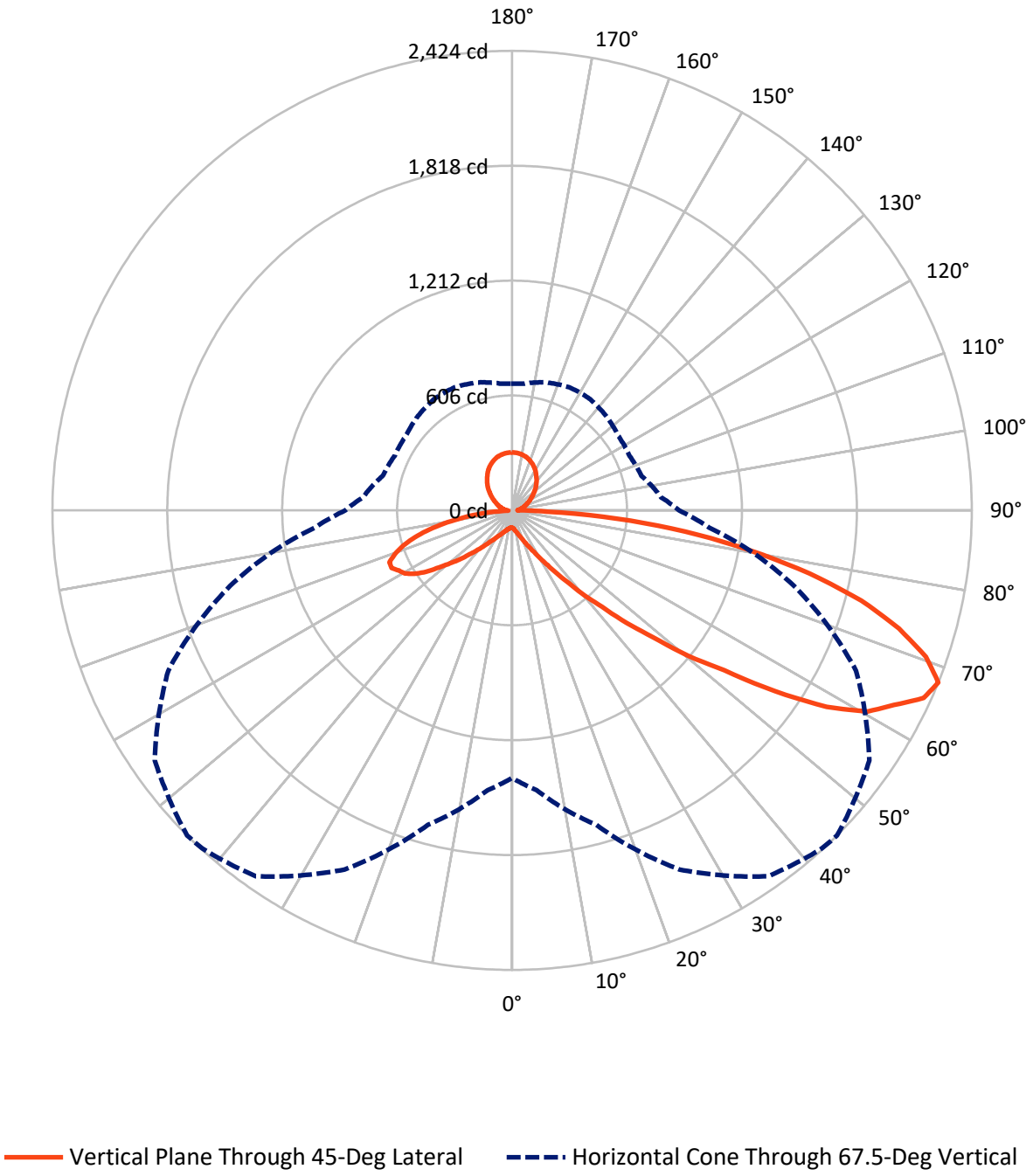
Luminous Intensity Polar Plot



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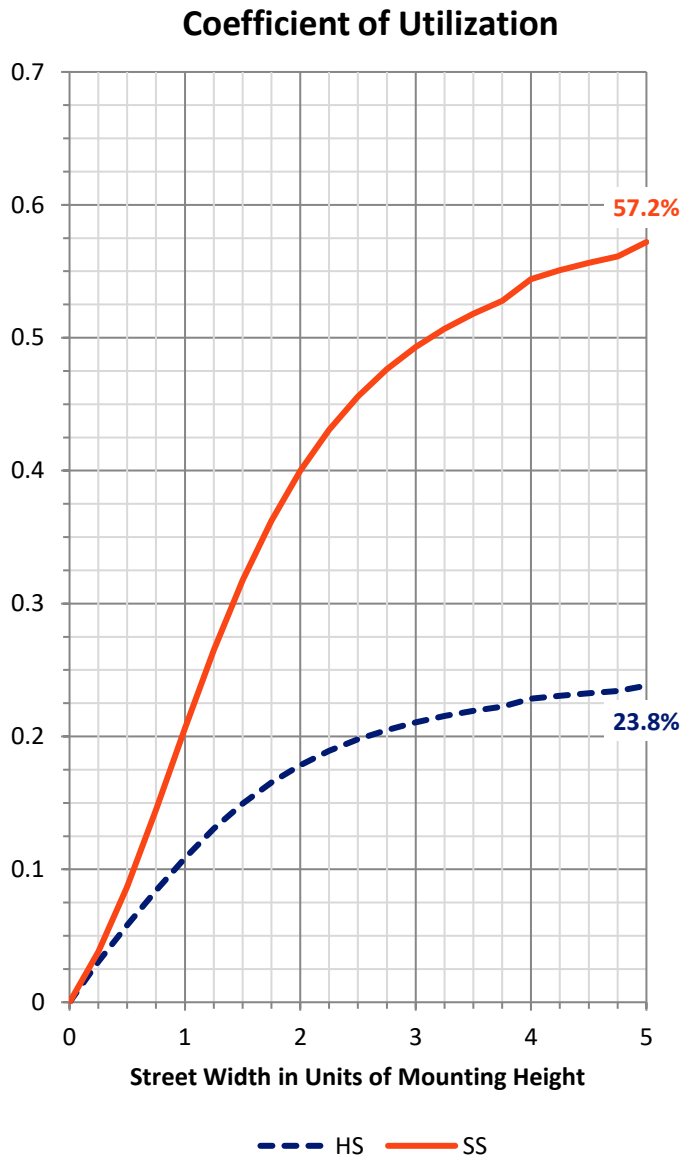
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1234.6	415.9	1650.5
	% Fixture	24.4	8.2	32.6
Street Side	Lumens	2999.4	415.9	3415.2
	% Fixture	59.2	8.2	67.4
Total	Lumens	4234.0	831.7	5065.7
	% Fixture	83.6	16.4	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.4	0.2
10°-20°	35.1	0.7
20°-30°	83.0	1.6
30°-40°	187.8	3.7
40°-50°	418.7	8.3
50°-60°	841.7	16.6
60°-70°	1236.3	24.4
70°-80°	1087.1	21.5
80°-90°	334.9	6.6
90°-100°	42.6	0.8
100°-110°	66.0	1.3
110°-120°	91.9	1.8
120°-130°	119.0	2.3
130°-140°	138.7	2.7
140°-150°	140.5	2.8
150°-160°	121.9	2.4
160°-170°	82.2	1.6
170°-180°	28.9	0.6
0°-90°	4234.0	83.6
0°-180°	5065.7	100.0



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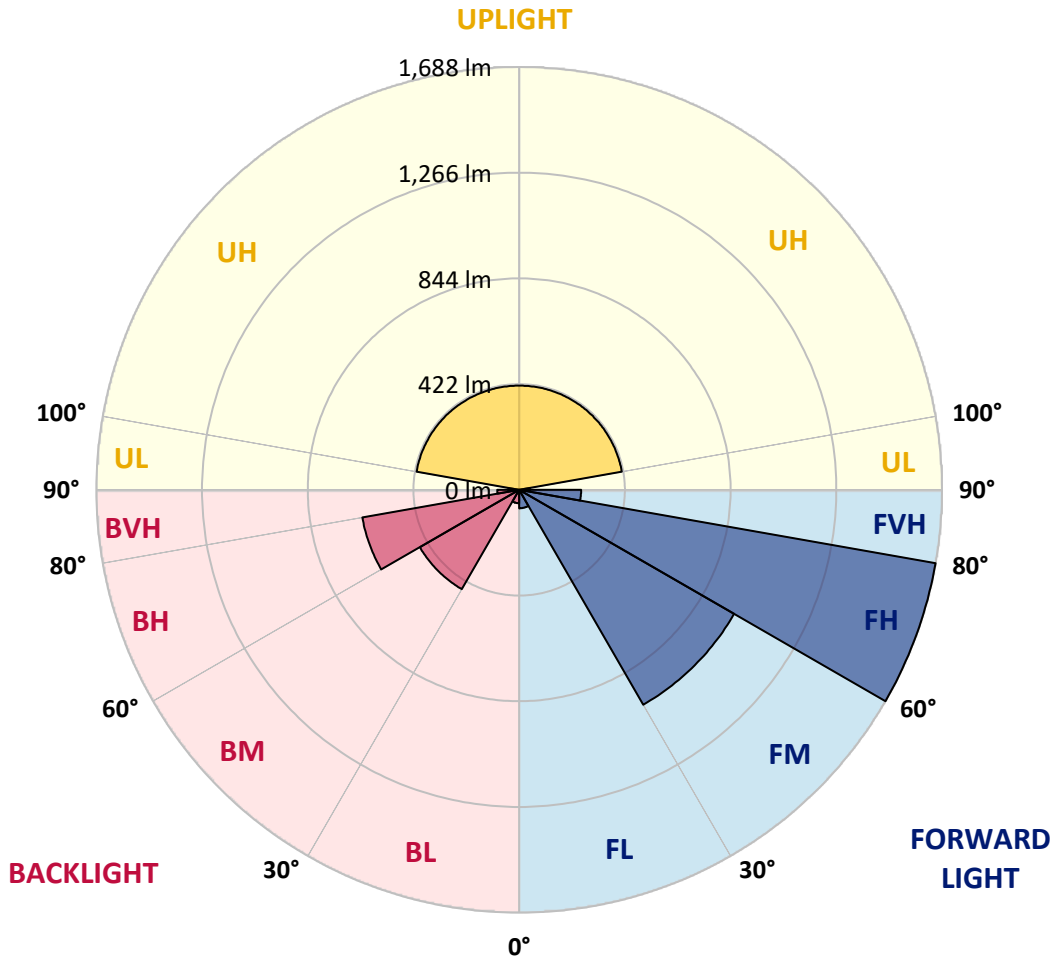
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	73.9	1.5			
FM	(30°-60°)	990.6	19.6			
FH	(60°-80°)	1687.7	33.3			G1/1800
FVH	(80°-90°)	247.2	4.9			G3/500
BL	(0°-30°)	53.6	1.1	B0/110		
BM	(30°-60°)	457.6	9.0	B1/1000		
BH	(60°-80°)	635.6	12.5	B2/1000		G2/1000
BVH	(80°-90°)	87.7	1.7			G1/100
UL	(90°-100°)	42.6	0.8		U2/50	
UH	(100°-180°)	415.9	8.2		U3/500	

BUG Rating: B2-U4-G3
Type IV Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	42.5°	45°	55°	65°	75°	85°
0°	91.8	91.8	91.8	91.8	91.8	91.8	*91.8*	91.8	91.8	91.8	91.8
2.5°	95.7	94.9	94.9	94.9	94.1	94.1	*94.1*	94.1	93.3	93.3	93.3
5°	101.2	100.5	101.2	99.7	98.9	98.9	*98.1*	98.1	97.3	96.5	95.7
7.5°	109.2	108.4	108.4	106.8	106.0	105.2	*105.2*	103.6	102.8	101.2	99.7
10°	117.9	117.9	117.1	116.3	114.7	113.1	*113.1*	110.7	109.9	107.6	105.2
12.5°	128.1	128.1	128.1	126.6	125.0	124.2	*122.6*	121.0	118.6	114.7	112.3
15°	140.8	140.8	140.8	139.2	137.6	136.0	*135.3*	132.1	128.1	124.2	119.4
17.5°	156.6	155.0	155.0	153.4	151.9	151.1	*149.5*	146.3	140.8	136.0	129.7
20°	174.0	173.2	172.4	172.4	170.8	169.3	*168.5*	163.7	157.4	148.7	140.8
22.5°	193.8	193.0	193.0	194.6	193.8	191.4	*191.4*	184.3	175.6	165.3	153.4
25°	218.3	217.5	219.1	222.3	222.3	220.7	*218.3*	211.2	198.5	184.3	170.1
27.5°	245.2	244.4	247.6	253.1	254.7	252.3	*250.7*	242.8	228.6	209.6	189.0
30°	277.6	278.4	287.1	293.5	297.4	295.8	*295.0*	286.3	263.4	241.2	214.4
32.5°	317.2	314.8	325.9	336.2	343.3	347.2	*344.9*	334.6	314.8	280.0	246.0
35°	359.1	359.9	373.3	388.4	405.0	406.6	*411.3*	401.0	374.1	333.0	285.5
37.5°	413.7	407.3	424.8	453.2	473.0	490.4	*487.2*	480.9	449.3	394.7	329.8
40°	462.7	461.1	485.7	525.2	561.6	586.9	*590.1*	582.2	540.2	462.7	377.3
42.5°	518.9	523.6	557.6	612.2	667.6	704.0	*695.3*	691.3	642.3	543.4	442.2
45°	575.8	591.6	635.1	714.2	779.1	831.3	*846.3*	832.9	772.8	670.7	524.4
47.5°	644.6	666.0	719.8	826.6	932.6	993.5	*996.6*	1037.0	946.0	793.3	609.8
50°	735.6	745.1	820.2	950.7	1096.3	1181.7	*1206.2*	1207.0	1116.1	916.7	706.3
52.5°	825.0	832.1	931.0	1099.4	1297.2	1394.5	*1400.0*	1430.9	1306.7	1116.1	844.8
55°	932.6	929.4	1065.4	1267.9	1501.3	1642.8	*1684.0*	1725.9	1567.7	1273.5	923.9
57.5°	1037.0	1032.2	1195.9	1461.7	1780.5	1921.3	*1955.3*	1925.2	1690.3	1339.1	962.6
60°	1133.5	1150.1	1349.4	1676.1	1996.4	2130.9	*2153.8*	2072.3	1769.4	1389.7	987.1
62.5°	1233.9	1267.1	1508.4	1854.8	2161.7	2258.2	*2259.8*	2164.1	1901.5	1487.8	1067.0
65°	1328.0	1381.0	1631.8	2007.5	2277.2	2373.7	*2384.8*	2298.6	2031.2	1573.2	1080.5
67.5°	*1411.1*	*1481.5*	*1717.2*	*2089.7*	*2355.5*	*2418.0*	*2423.5*	*2299.4*	*2000.4*	*1538.4*	*1043.3*
70°	1478.3	1535.3	1770.2	2091.3	2300.9	2318.3	*2314.4*	2182.3	1914.9	1469.6	980.8
72.5°	1504.4	1551.1	1744.9	1993.2	2140.4	2136.4	*2133.2*	2011.4	1774.1	1354.9	890.6
75°	1467.3	1480.7	1606.5	1783.6	1877.0	1899.1	*1902.3*	1792.3	1556.6	1184.9	764.1
77.5°	1313.8	1306.7	1403.2	1520.2	1590.6	1606.5	*1603.3*	1511.5	1305.1	984.8	640.7
80°	1041.7	1056.7	1116.9	1194.4	1264.8	1282.2	*1271.1*	1201.5	1015.6	768.0	492.0
82.5°	728.5	746.7	797.3	855.8	908.8	908.8	*919.1*	851.9	719.8	551.3	344.1
85°	393.1	382.8	438.2	504.6	542.6	549.7	*553.7*	531.5	445.3	333.0	204.1
87.5°	64.9	69.6	86.2	132.1	150.3	174.0	*185.1*	144.7	87.8	56.2	41.1
90°	30.1	29.1	29.1	29.1	29.1	29.1	*29.1*	29.1	29.1	29.1	29.1
92.5°	34.8	34.2	34.2	33.8	33.8	33.8	*33.8*	33.8	33.8	33.8	33.8
95°	39.4	39.4	39.4	38.5	38.5	38.5	*38.5*	38.5	38.5	38.5	38.5
97.5°	44.6	44.6	44.6	44.2	44.2	44.2	*44.2*	44.2	44.2	44.2	44.2
100°	49.8	49.8	49.8	49.8	49.8	49.8	*49.8*	49.8	49.8	49.8	49.8
102.5°	55.9	55.9	55.9	55.9	55.9	55.9	*55.9*	55.9	56.4	55.9	55.9
105°	62.0	62.0	62.0	62.0	62.0	62.0	*62.0*	62.0	62.9	62.0	62.0
107.5°	68.6	68.6	69.0	69.0	69.0	69.0	*69.0*	69.0	69.5	69.0	69.0
110°	75.1	75.1	76.1	76.1	76.1	76.1	*76.1*	76.1	76.1	76.1	76.1

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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	42.5°	45°	55°	65°	75°	85°
112.5°	83.1	83.1	84.0	84.0	84.0	84.0	*84.0*	84.6	84.6	84.0	84.0
115°	91.1	91.1	92.0	92.0	92.0	92.0	*92.0*	93.0	93.0	92.0	92.0
117.5°	100.5	100.5	101.0	101.4	101.4	101.4	*101.4*	102.4	102.4	101.4	101.4
120°	109.9	109.9	109.9	110.8	110.8	110.8	*110.8*	111.8	111.8	110.8	110.8
122.5°	120.7	120.7	121.2	121.6	121.6	121.6	*121.6*	122.6	122.6	122.1	122.1
125°	131.5	131.5	132.4	132.4	132.4	132.4	*132.4*	133.4	133.4	133.4	133.4
127.5°	143.2	143.2	144.2	144.2	144.2	144.2	*144.2*	145.1	145.1	145.1	145.1
130°	155.0	155.0	155.9	155.9	155.9	155.9	*155.9*	156.8	156.8	156.8	156.8
132.5°	167.2	167.2	167.6	167.6	167.6	168.0	*168.1*	168.6	168.6	168.6	168.6
135°	179.4	179.4	179.4	179.4	179.4	180.1	*180.3*	180.3	180.3	180.3	180.3
137.5°	191.2	190.6	191.2	190.6	191.2	191.5	*191.6*	191.6	191.6	191.6	191.6
140°	202.9	201.9	202.9	201.9	202.9	202.9	*202.9*	202.9	202.9	202.9	202.9
142.5°	213.7	213.2	213.7	212.7	213.7	213.7	*213.7*	213.7	213.7	213.7	213.7
145°	224.5	224.5	224.5	223.5	224.5	224.5	*224.5*	224.5	224.5	224.5	224.5
147.5°	235.8	235.3	235.8	234.8	235.8	235.8	*235.8*	235.8	235.8	235.8	235.8
150°	247.0	246.1	247.0	246.1	247.0	247.0	*247.0*	247.0	247.0	247.0	247.0
152.5°	256.0	255.5	256.4	255.5	256.0	256.0	*256.0*	256.4	256.0	256.0	256.0
155°	264.9	264.9	265.8	264.9	264.9	264.9	*264.9*	265.8	264.9	264.9	264.9
157.5°	272.4	272.4	273.3	272.4	272.4	272.4	*272.4*	273.3	272.4	272.4	272.4
160°	279.9	279.9	280.8	279.9	279.9	279.9	*279.9*	280.8	279.9	279.9	279.9
162.5°	286.0	286.0	286.9	286.0	286.0	286.0	*286.0*	286.9	286.0	286.0	286.0
165°	292.1	292.1	293.0	292.1	292.1	292.1	*292.1*	293.0	292.1	292.1	292.1
167.5°	295.8	295.8	296.8	295.8	295.8	295.8	*295.8*	296.8	295.8	295.8	295.8
170°	299.6	299.6	300.5	299.6	299.6	299.6	*299.6*	300.5	299.6	299.6	299.6
172.5°	302.0	302.0	302.8	302.0	302.4	302.1	*302.0*	302.8	302.0	302.0	302.0
175°	304.3	304.3	305.2	304.3	305.2	304.6	*304.3*	305.2	304.3	304.3	304.3
177.5°	305.2	305.2	305.7	305.2	305.7	305.4	*305.2*	305.7	305.2	305.2	305.2
180°	306.2	306.2	306.2	306.2	306.2	306.2	*306.2*	306.2	306.2	306.2	306.2

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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8	91.8
2.5°	93.3	92.5	91.8	91.0	91.0	90.2	90.2	90.2	91.0	91.0	91.0
5°	95.7	94.9	94.1	93.3	91.8	91.8	91.8	91.8	91.8	91.8	91.8
7.5°	99.7	98.1	97.3	95.7	94.1	94.1	93.3	93.3	93.3	94.1	93.3
10°	104.4	102.8	101.2	98.9	98.1	97.3	96.5	96.5	97.3	97.3	96.5
12.5°	109.9	109.2	106.0	103.6	102.0	101.2	100.5	101.2	100.5	101.2	101.2
15°	117.9	115.5	111.5	109.2	106.8	106.0	105.2	106.0	106.0	106.8	106.0
17.5°	126.6	123.4	119.4	115.5	112.3	111.5	111.5	111.5	112.3	113.1	112.3
20°	136.8	132.9	127.3	122.6	119.4	118.6	118.6	119.4	120.2	121.0	121.0
22.5°	147.1	144.0	136.0	129.7	128.1	127.3	126.6	128.1	129.7	130.5	131.3
25°	162.9	156.6	147.1	140.0	136.8	136.8	137.6	139.2	140.0	141.6	140.8
27.5°	179.6	172.4	160.6	151.1	148.7	147.9	149.5	151.1	154.2	154.2	153.4
30°	202.5	190.6	175.6	166.9	160.6	161.4	163.7	166.1	169.3	170.8	170.8
32.5°	228.6	215.9	195.4	181.9	178.8	179.6	180.3	184.3	187.5	190.6	188.3
35°	262.6	246.8	221.5	206.4	198.5	197.7	200.9	205.7	208.8	210.4	210.4
37.5°	299.8	279.2	247.6	234.9	225.4	224.6	225.4	229.4	233.3	234.9	238.1
40°	344.9	319.6	282.4	261.8	254.7	253.1	256.3	261.8	261.8	264.2	265.0
42.5°	400.2	367.8	326.7	299.8	291.1	291.1	290.3	295.0	295.0	295.0	293.5
45°	470.6	434.2	380.5	352.8	337.7	329.8	332.2	329.0	328.3	330.6	323.5
47.5°	538.7	492.8	429.5	399.4	384.4	379.7	371.0	368.6	364.6	364.6	354.4
50°	617.7	560.8	499.9	457.2	442.9	429.5	422.4	411.3	399.4	397.1	393.1
52.5°	749.8	678.7	582.9	537.1	500.7	487.2	470.6	456.4	442.2	431.1	437.4
55°	803.6	730.9	639.9	595.6	570.3	557.6	526.8	507.8	486.4	470.6	479.3
57.5°	830.5	751.4	666.8	633.6	626.4	614.6	591.6	559.2	534.7	514.9	516.5
60°	845.5	762.5	681.0	651.0	647.0	654.9	643.1	620.9	582.9	563.2	560.8
62.5°	903.3	816.3	721.4	678.7	670.0	675.5	678.7	665.2	633.6	607.5	600.3
65°	915.2	822.6	729.3	701.6	702.4	704.0	706.3	692.1	676.3	643.9	637.5
67.5°	*879.6*	*788.6*	*705.5*	*682.6*	*684.2*	*702.4*	*716.6*	*715.8*	*698.4*	*670.7*	*668.4*
70°	825.8	737.2	660.5	639.9	643.9	660.5	691.3	707.1	704.0	685.8	689.7
72.5°	741.9	662.8	595.6	579.8	589.3	605.1	634.4	662.8	679.4	683.4	692.1
75°	643.9	580.6	517.3	507.8	514.9	533.1	560.0	593.2	629.6	649.4	654.9
77.5°	531.5	473.8	427.1	420.8	431.1	447.7	474.6	500.7	541.8	576.6	584.5
80°	416.1	366.2	333.0	327.5	333.8	348.0	368.6	389.9	429.5	456.4	460.3
82.5°	288.7	258.6	237.3	234.1	238.1	243.6	260.2	280.0	302.2	323.5	325.9
85°	167.7	148.7	143.2	138.4	147.1	147.1	151.1	162.1	173.2	174.8	179.6
87.5°	30.8	29.3	30.1	22.1	27.7	19.8	19.8	25.3	19.0	22.1	18.2
90°	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	30.1
92.5°	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	34.2	34.2	34.8
95°	38.5	38.5	38.5	38.5	38.5	38.5	38.5	38.5	39.4	39.4	39.4
97.5°	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.2	44.6	44.6	44.6
100°	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8	49.8
102.5°	55.9	55.9	55.9	56.4	55.9	55.9	55.9	55.9	55.9	55.9	55.9
105°	62.0	62.0	62.0	62.9	62.0	62.0	62.0	62.0	62.0	62.0	62.0
107.5°	69.0	69.0	69.0	69.5	69.0	69.0	69.0	69.0	69.0	68.6	68.6
110°	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	75.1	75.1

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

Scaled Data Report

REPORT NUMBER: P406327
CATALOG NUMBER: TT-D2-735-U-DL-UPL

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	84.0	84.0	84.0	84.6	84.6	84.0	84.0	84.0	84.0	83.1	83.1
115°	92.0	92.0	92.0	93.0	93.0	92.0	92.0	92.0	92.0	91.1	91.1
117.5°	101.4	101.4	101.4	102.4	102.4	101.4	101.4	101.4	101.0	100.5	100.5
120°	110.8	110.8	110.8	111.8	111.8	110.8	110.8	110.8	109.9	109.9	109.9
122.5°	121.6	122.1	122.1	122.6	122.6	121.6	121.6	121.6	121.2	120.7	120.7
125°	132.4	133.4	133.4	133.4	133.4	132.4	132.4	132.4	132.4	131.5	131.5
127.5°	144.2	145.1	145.1	145.1	145.1	144.2	144.2	144.2	144.2	143.2	143.2
130°	155.9	156.8	156.8	156.8	156.8	155.9	155.9	155.9	155.9	155.0	155.0
132.5°	168.1	168.6	168.6	168.6	168.6	168.1	167.6	167.6	167.6	167.2	167.2
135°	180.3	180.3	180.3	180.3	180.3	180.3	179.4	179.4	179.4	179.4	179.4
137.5°	191.6	191.6	191.6	191.6	191.6	191.6	191.2	190.6	191.2	190.6	191.2
140°	202.9	202.9	202.9	202.9	202.9	202.9	202.9	201.9	202.9	201.9	202.9
142.5°	213.7	213.7	213.7	213.7	213.7	213.7	213.7	212.7	213.7	213.2	213.7
145°	224.5	224.5	224.5	224.5	224.5	224.5	224.5	223.5	224.5	224.5	224.5
147.5°	235.8	235.8	235.8	235.8	235.8	235.8	235.8	234.8	235.8	235.3	235.8
150°	247.0	247.0	247.0	247.0	247.0	247.0	247.0	246.1	247.0	246.1	247.0
152.5°	256.0	256.0	256.0	256.0	256.4	256.0	256.0	255.5	256.4	255.5	256.0
155°	264.9	264.9	264.9	264.9	265.8	264.9	264.9	264.9	265.8	264.9	264.9
157.5°	272.4	272.4	272.4	272.4	273.3	272.4	272.4	272.4	273.3	272.4	272.4
160°	279.9	279.9	279.9	279.9	280.8	279.9	279.9	279.9	280.8	279.9	279.9
162.5°	286.0	286.0	286.0	286.0	286.9	286.0	286.0	286.0	286.9	286.0	286.0
165°	292.1	292.1	292.1	292.1	293.0	292.1	292.1	292.1	293.0	292.1	292.1
167.5°	295.8	295.8	295.8	295.8	296.8	295.8	295.8	295.8	296.8	295.8	295.8
170°	299.6	299.6	299.6	299.6	300.5	299.6	299.6	299.6	300.5	299.6	299.6
172.5°	302.0	302.0	302.0	302.0	302.8	302.0	302.4	302.0	302.8	302.0	302.0
175°	304.3	304.3	304.3	304.3	305.2	304.3	305.2	304.3	305.2	304.3	304.3
177.5°	305.2	305.2	305.2	305.2	305.7	305.2	305.7	305.2	305.7	305.2	305.2
180°	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2	306.2

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 families of products including TT-xx-735 and TTN-xx-735

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

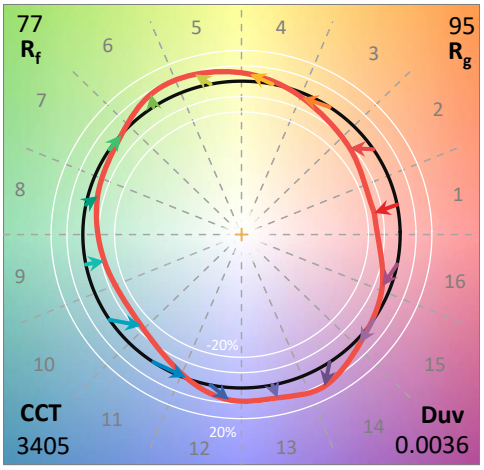
Test Information

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

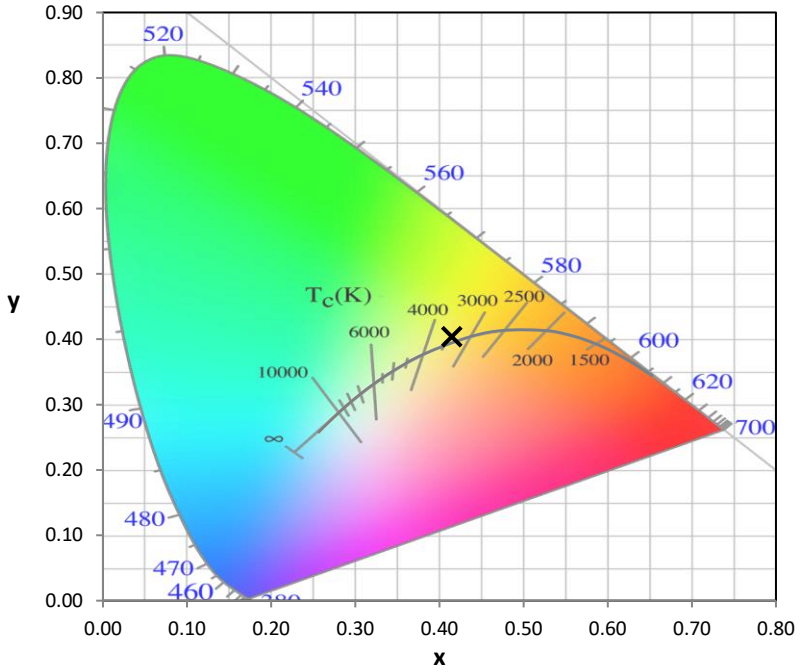
Stabilization Time:	38M
Operation Time:	1H 38M
Sphere Temperature (°C):	24.9

REPORT NUMBER: SP1-2411-284-1

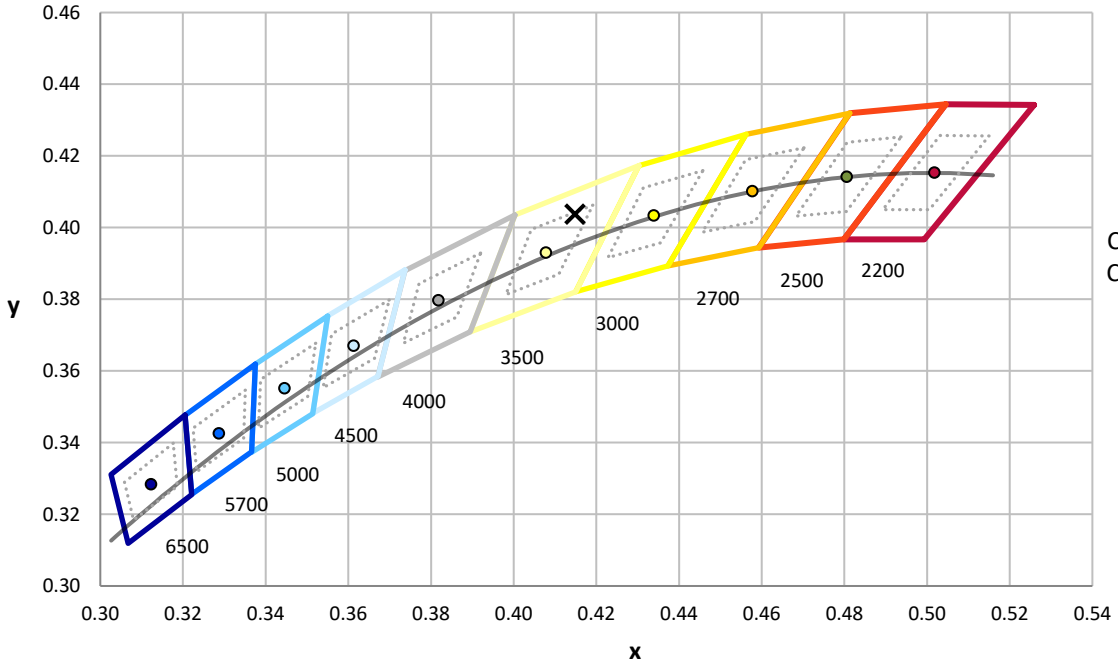
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

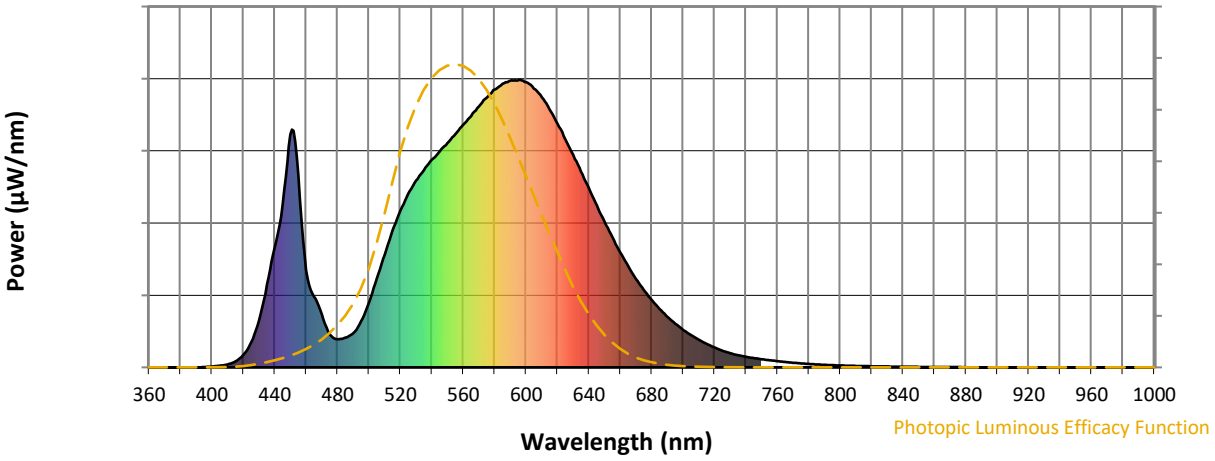


CCT = 3405K
CIE x = 0.4148
CIE y = 0.4038
Duv = 0.0036

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

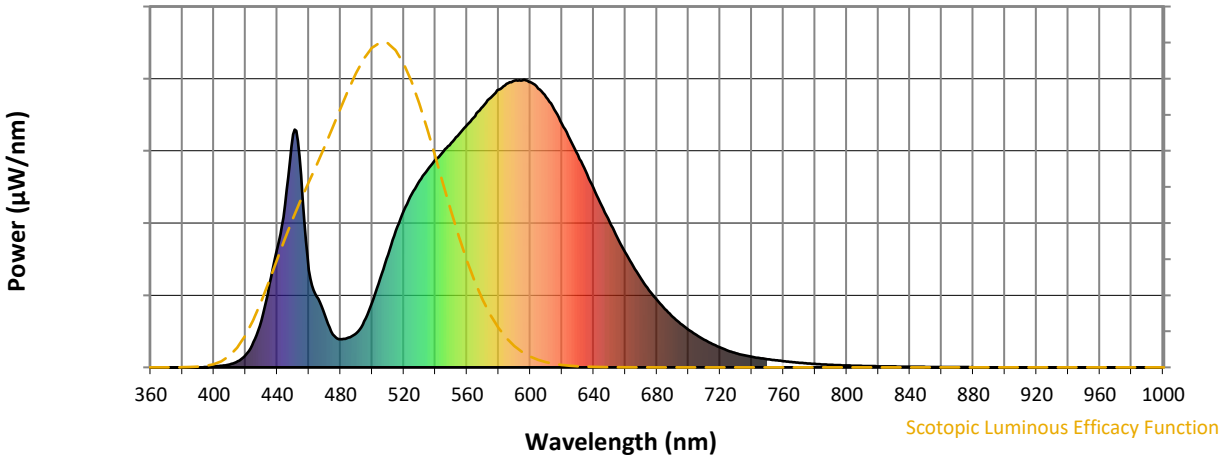


Photopic Lumens: NR

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

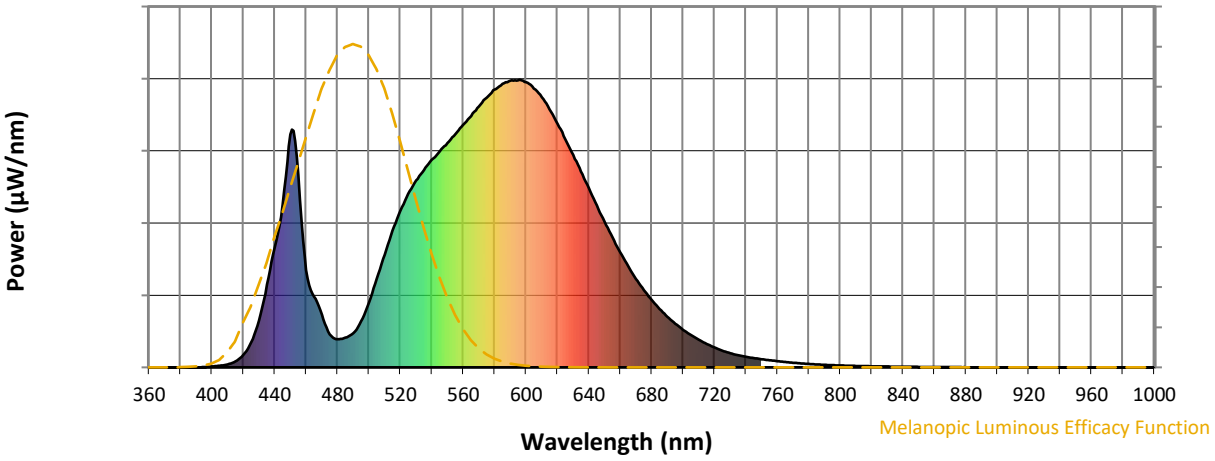


Scotopic Lumens: NR **S/P: 1.33**

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			

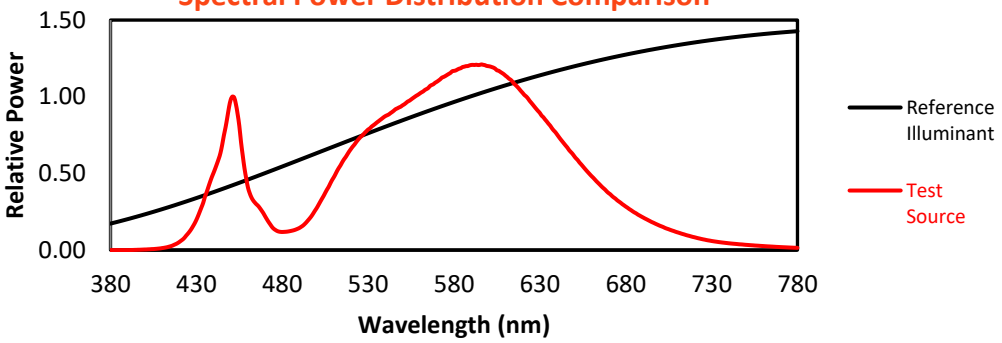
REPORT NUMBER: SP1-2411-284-1

TM-30-18

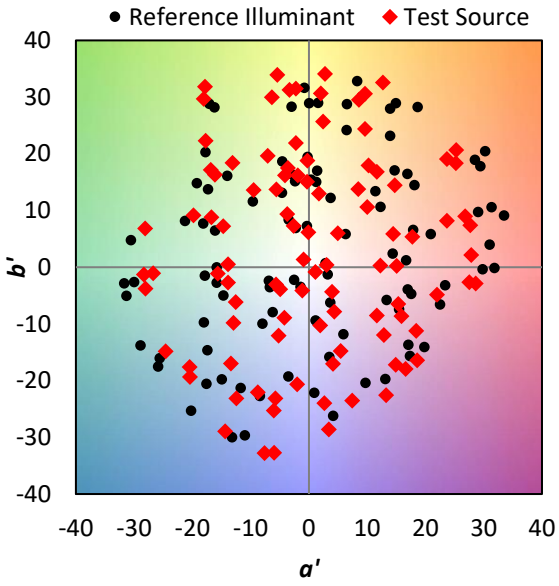
Summary

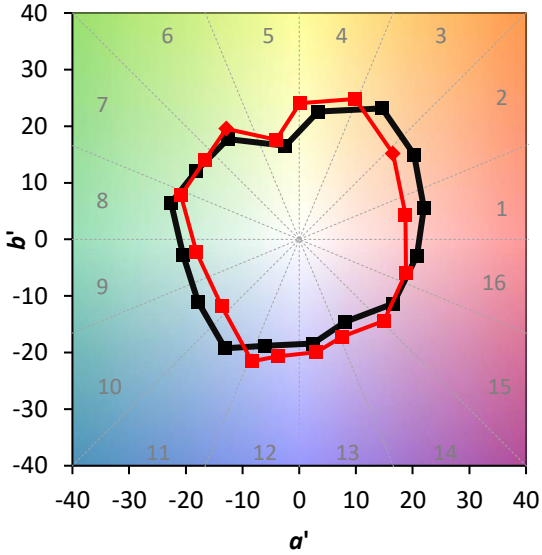
R_f = 76.6
R_g = 95.4
CIE R_a = 73.9
R_9 = -18.0

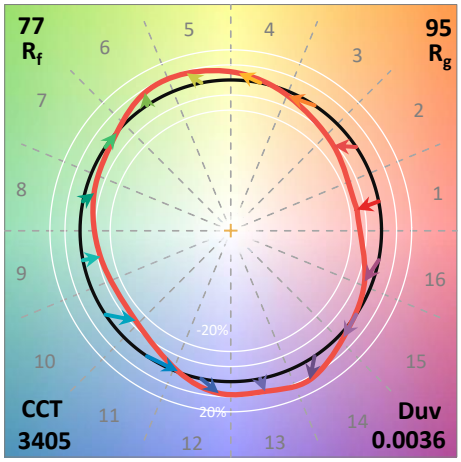
Spectral Power Distribution Comparison

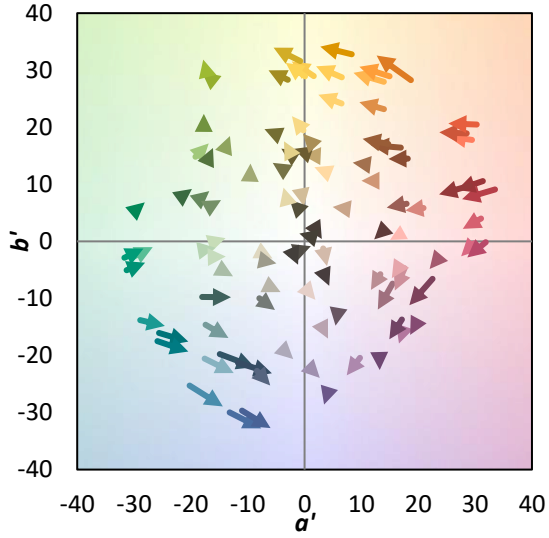


Color Vector Graphics







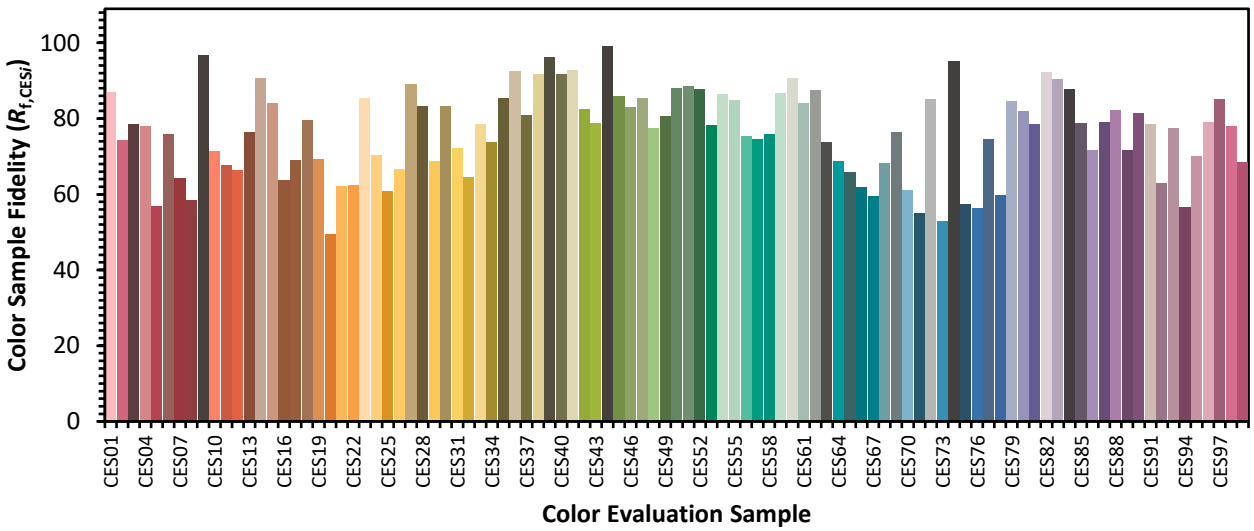


REPORT NUMBER: SP1-2411-284-1

TM-30-18

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

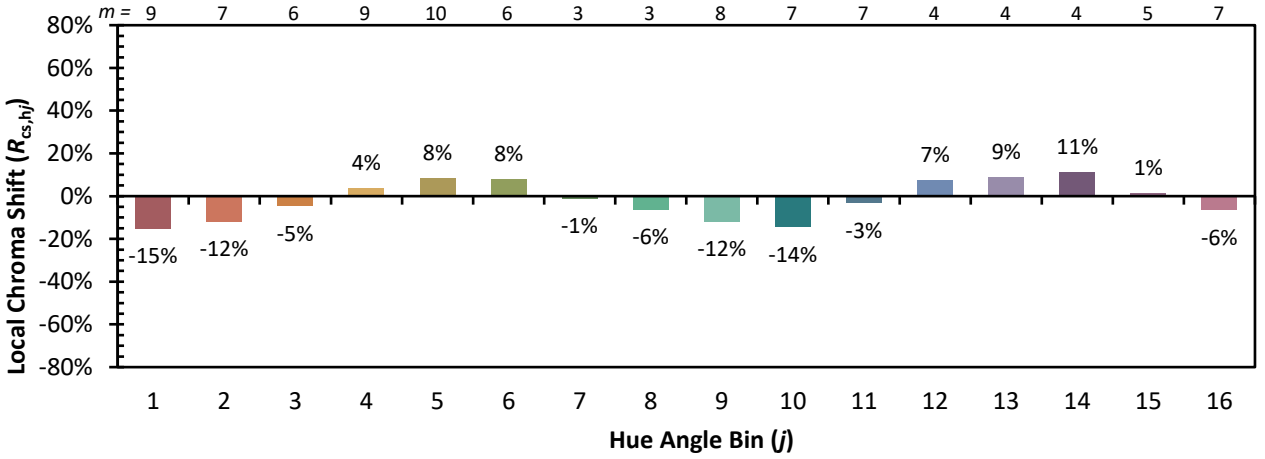
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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

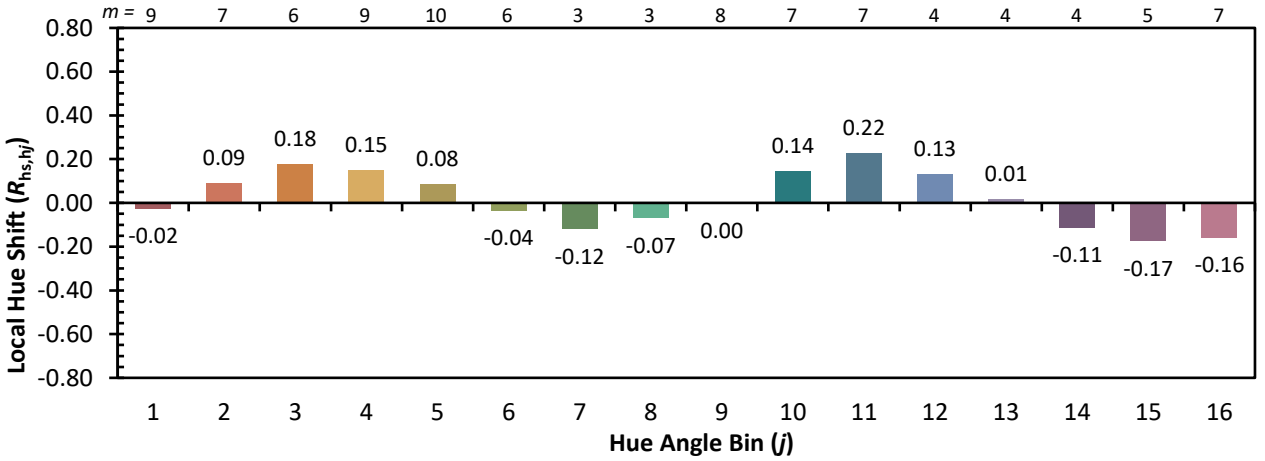


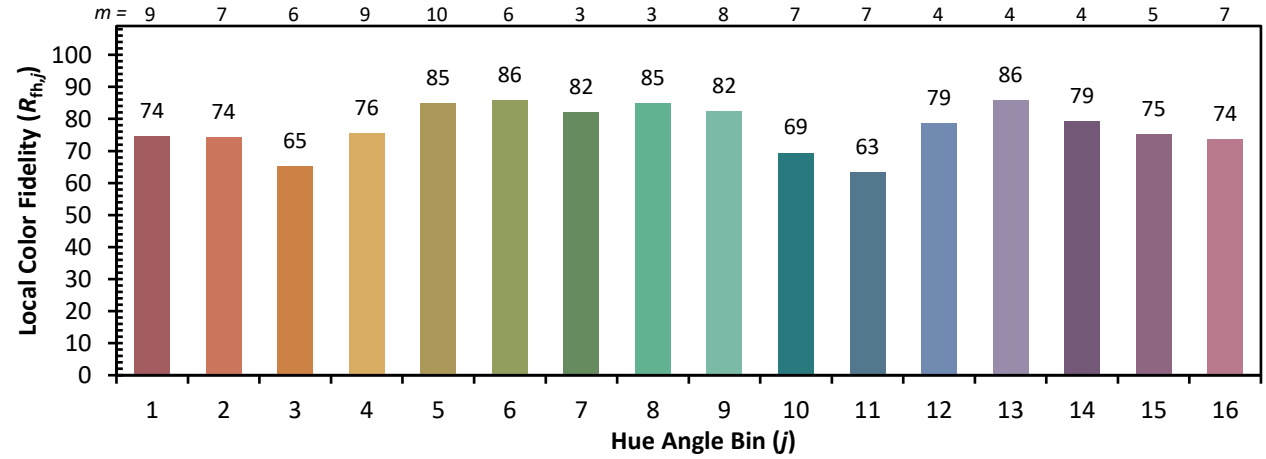
REPORT NUMBER: SP1-2411-284-1

TM-30-18

Color Rendition by Hue-Angle Bin







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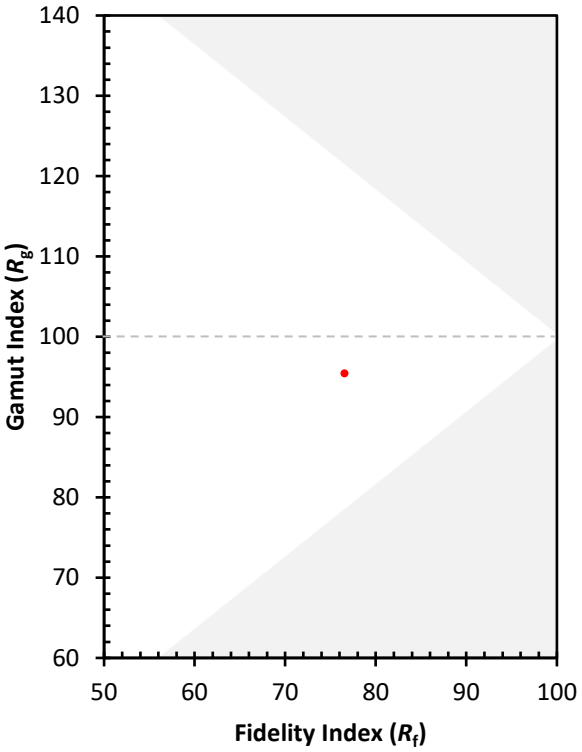
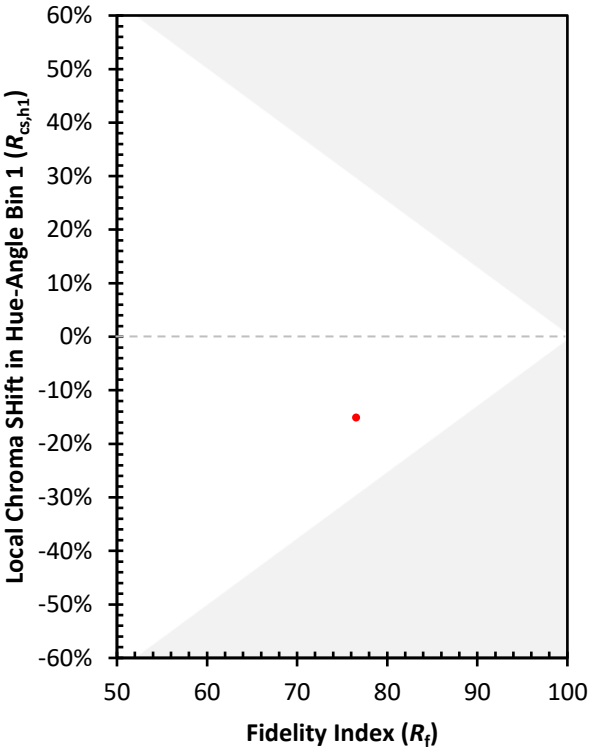
Measure Comparisons





(END OF REPORT)