

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: P436732

Luminaire Tested: **TT-D1-735-U-5WQ-PM-HSS**

Issue Date: 12/2/2020

Test Information

Test Method: LM-79-08
Report Number: P436732
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-2)
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D1-735-U-5WQ-PM-HSS
Description: TOPTIER LED SITE LUMINAIRE
3500K, 70 CRI LEDS AND WIDE DISTRIBUTION WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2949.1 lumens
Efficiency: N/A
Efficacy: 105.3 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U1 - G2

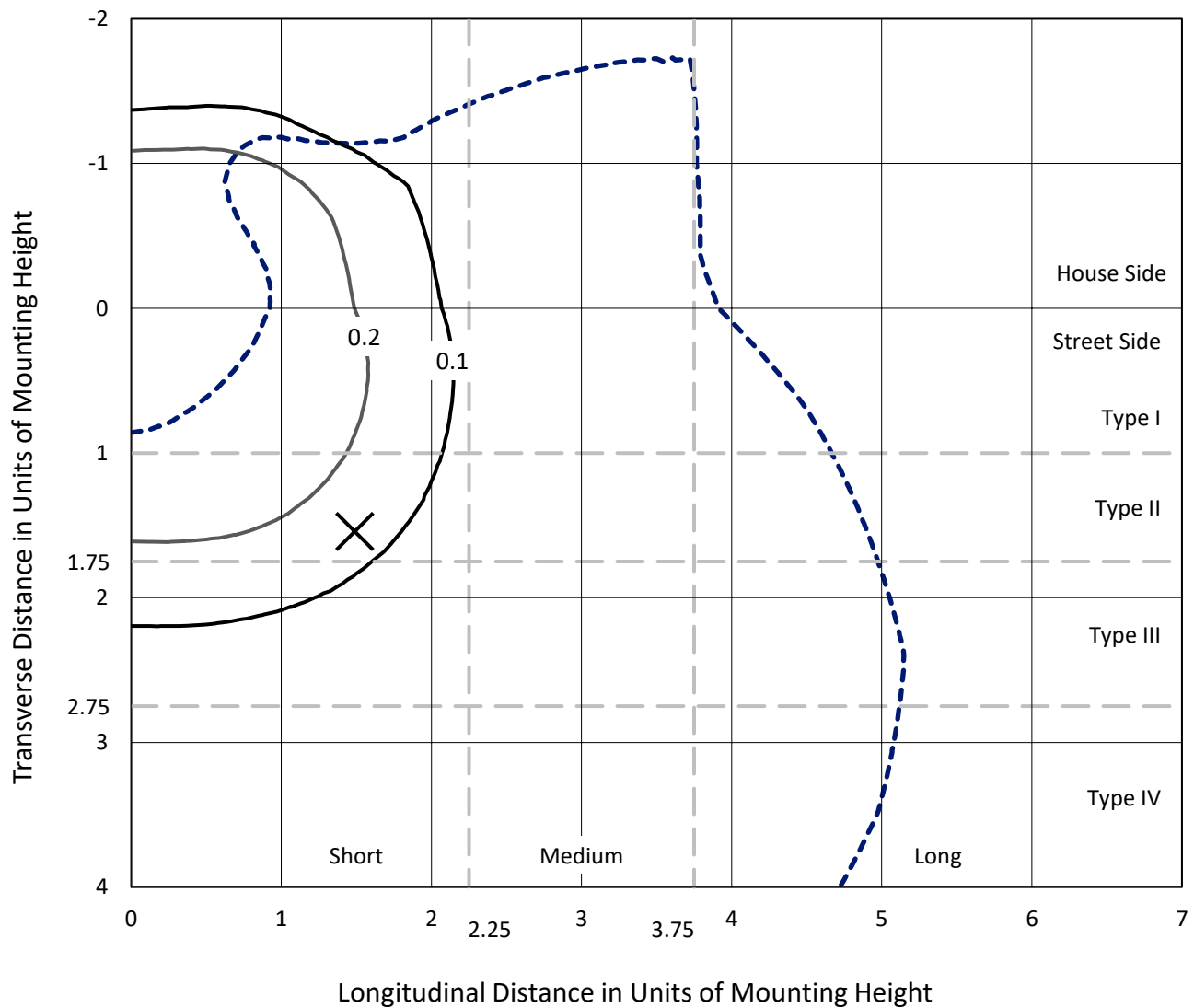
Input Watts (W): 28
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P436732
 CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

Iso-Footcandle Lines of Horizontal Illumination

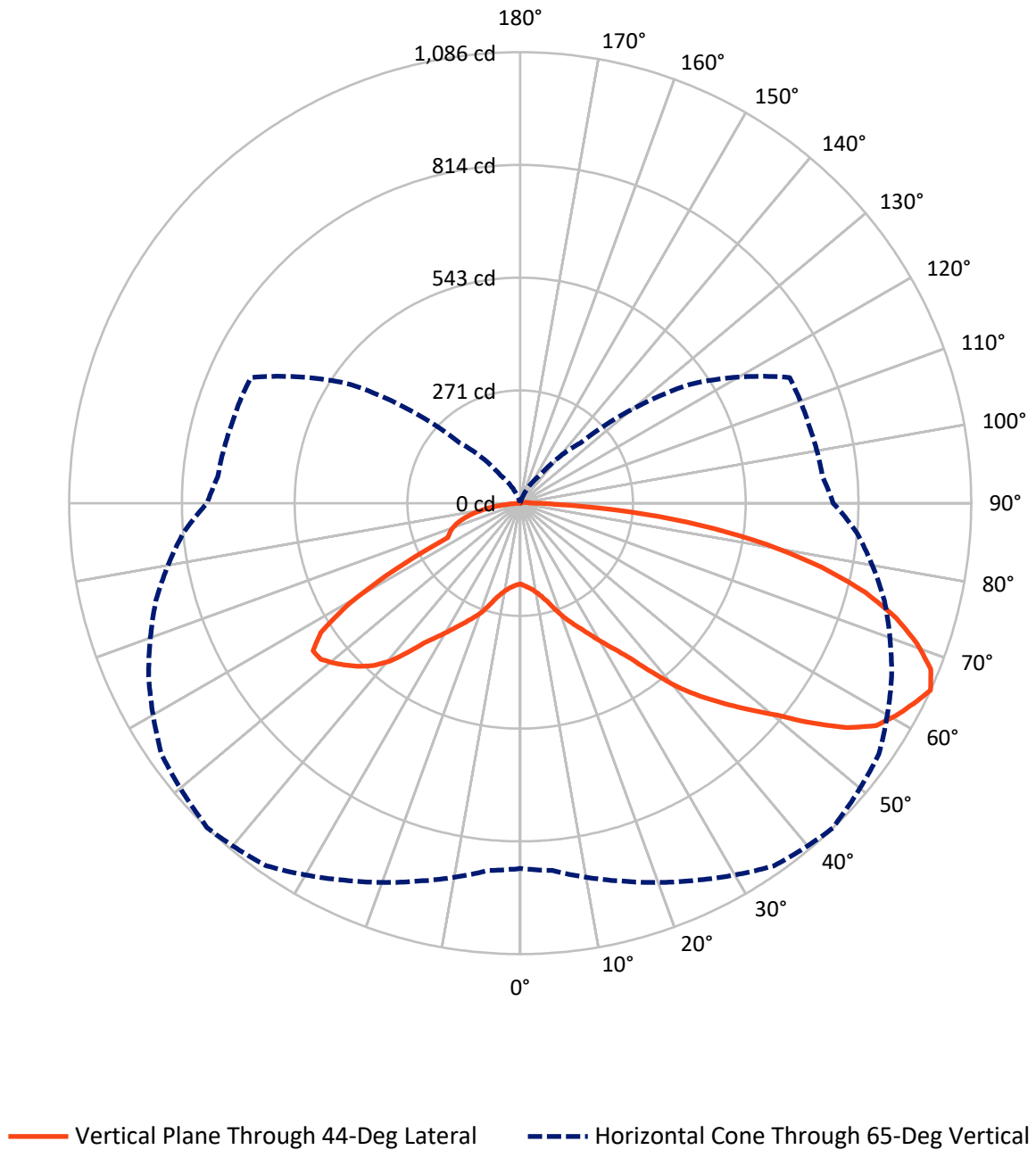
✕ Max cd
 --- 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.4 fc
 Type IV - Short - N/A

REPORT NUMBER: P436732
CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

Luminous Intensity Polar Plot



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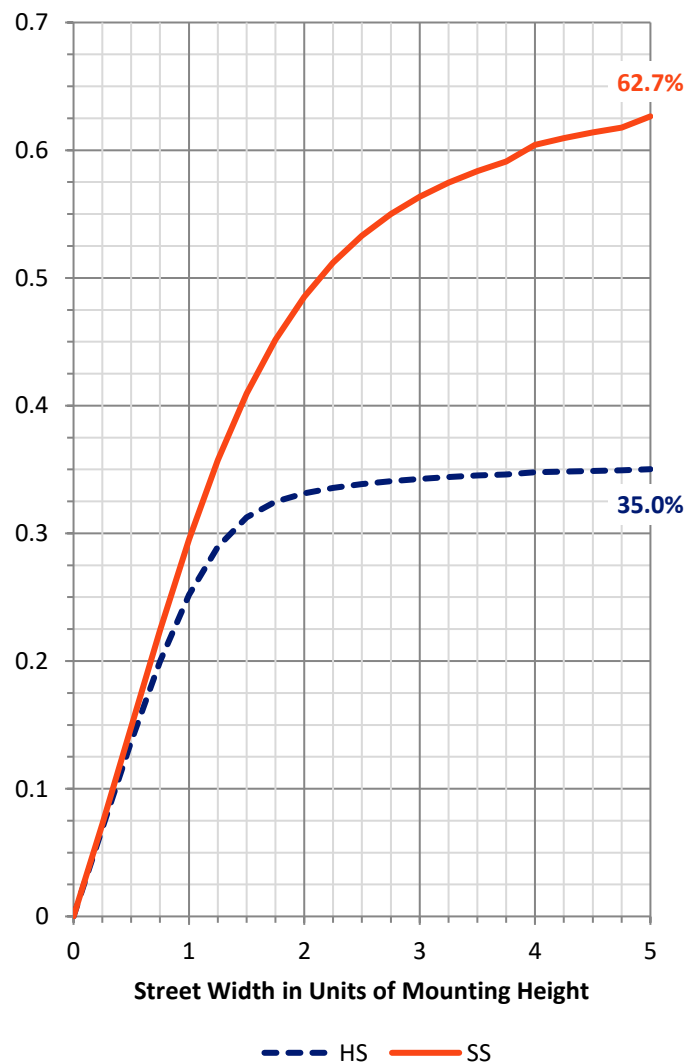
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1038.7	0.7	1039.4
	% Fixture	35.2	0.0	35.2
Street Side	Lumens	1897.7	12.0	1909.7
	% Fixture	64.3	0.4	64.8
Total	Lumens	2936.4	12.7	2949.1
	% Fixture	99.6	0.4	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	19.7	0.7
10°-20°	70.1	2.4
20°-30°	150.1	5.1
30°-40°	271.8	9.2
40°-50°	453.6	15.4
50°-60°	628.3	21.3
60°-70°	651.1	22.1
70°-80°	524.0	17.8
80°-90°	167.6	5.7
90°-100°	8.5	0.3
100°-110°	2.7	0.1
110°-120°	0.5	0.0
120°-130°	0.3	0.0
130°-140°	0.2	0.0
140°-150°	0.2	0.0
150°-160°	0.1	0.0
160°-170°	0.1	0.0
170°-180°	0.0	0.0
0°-90°	2936.4	99.6
0°-180°	2949.1	100.0

Coefficient of Utilization



REPORT NUMBER: P436732

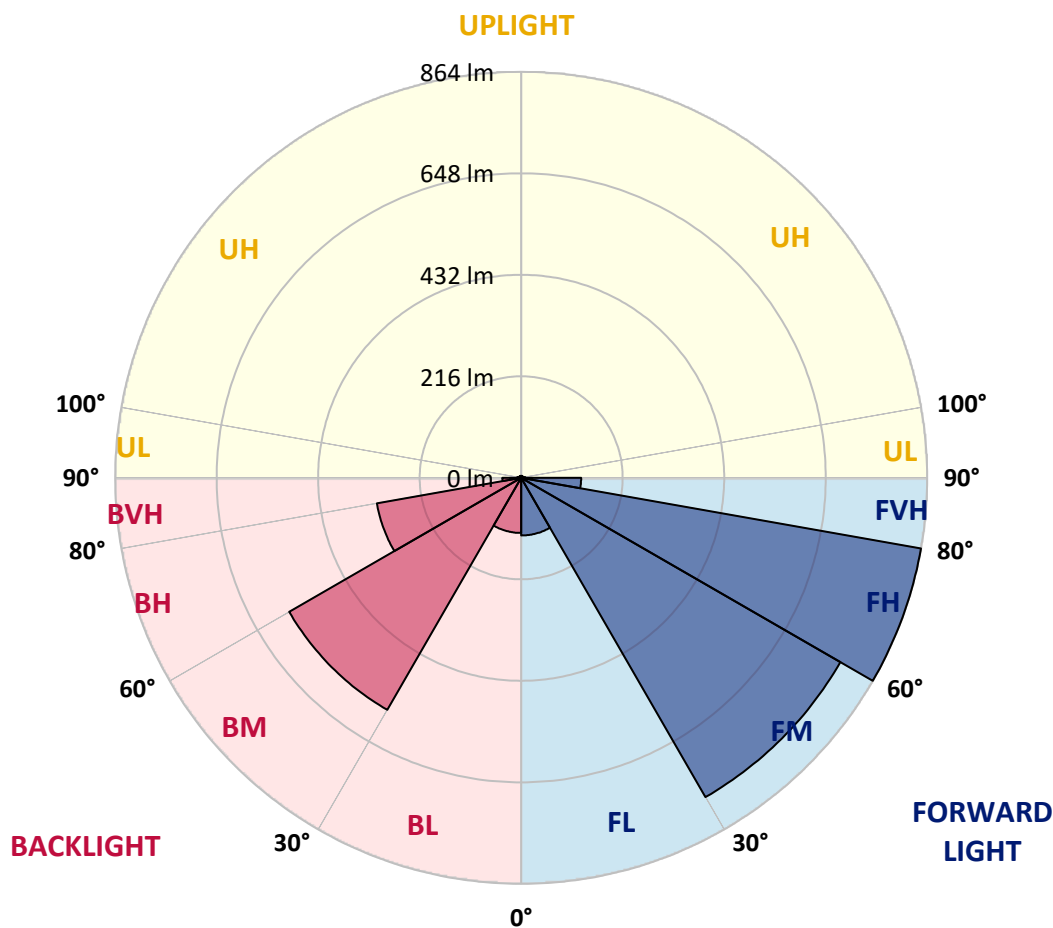
CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	122.6	4.2			
FM	(30°-60°)	784.0	26.6			
FH	(60°-80°)	863.5	29.3			G1/1800
FVH	(80°-90°)	127.5	4.3			G2/225
BL	(0°-30°)	117.3	4.0	B1/500		
BM	(30°-60°)	569.7	19.3	B1/1000		
BH	(60°-80°)	311.6	10.6	B1/500		G1/500
BVH	(80°-90°)	40.1	1.4			G1/100
UL	(90°-100°)	8.5	0.3		U1/10	
UH	(100°-180°)	4.2	0.1		U1/10	

BUG Rating: B1-U1-G2

Type IV Short



REPORT NUMBER: P436732

CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
0°	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6
2.5°	200.4	199.8	199.8	199.2	199.2	199.2	199.2	199.2	198.6	198.0	197.5
5°	205.5	205.5	205.0	205.0	204.4	203.8	204.4	203.8	203.2	202.7	202.1
7.5°	212.4	211.9	211.9	210.7	210.7	210.1	210.1	210.1	209.6	208.4	207.8
10°	222.2	221.1	221.1	219.9	219.4	218.8	218.8	217.6	217.6	217.0	216.5
12.5°	233.2	232.0	233.2	232.6	231.4	230.3	230.3	229.1	228.6	228.0	225.7
15°	247.6	245.8	247.0	247.0	246.4	245.8	245.8	243.5	242.4	241.2	238.9
17.5°	264.8	263.7	264.3	264.8	266.6	266.6	267.1	264.3	262.0	257.9	256.2
20°	286.7	286.1	287.9	287.9	289.6	289.6	290.2	287.3	283.3	280.4	276.9
22.5°	308.0	308.0	310.3	310.3	312.0	310.9	310.9	309.7	305.1	301.7	298.2
25°	329.9	329.3	331.6	333.3	335.6	332.8	333.9	332.2	327.6	323.0	318.4
27.5°	354.1	352.9	354.1	356.4	360.4	358.1	359.3	356.4	351.8	345.4	341.4
30°	380.6	378.8	380.6	384.0	386.9	388.0	387.5	383.4	379.4	370.2	367.3
32.5°	406.5	406.5	410.5	416.8	420.3	419.7	420.3	416.8	411.1	399.6	392.6
35°	438.1	440.4	445.6	454.8	462.3	459.4	459.4	458.3	448.5	434.7	425.5
37.5°	480.2	482.5	492.8	503.8	517.6	516.4	517.0	513.5	494.5	480.2	466.9
40°	529.1	531.4	546.9	562.5	575.7	579.8	580.3	572.8	552.1	531.4	510.7
42.5°	574.0	576.9	593.0	614.9	629.3	635.6	636.7	624.7	602.8	579.2	553.3
45°	618.9	622.4	640.8	663.8	684.5	687.4	688.0	677.6	653.4	626.4	593.0
47.5°	665.0	667.8	686.8	714.5	736.9	742.7	743.3	733.5	704.1	671.3	632.1
50°	707.0	712.7	738.7	768.0	798.0	802.6	803.1	792.2	757.7	720.8	669.0
52.5°	756.5	759.4	787.0	835.9	861.3	879.1	879.7	858.4	821.6	772.0	705.3
55°	814.1	819.3	847.5	896.4	941.9	954.0	957.4	932.1	883.2	829.6	751.3
57.5°	847.5	857.3	898.7	945.3	1002.3	1010.4	1012.1	985.6	931.5	872.8	785.9
60°	865.3	871.1	914.8	987.4	1031.7	1039.2	1038.6	1018.5	964.3	892.9	802.0
62.5°	885.5	895.2	932.1	1005.8	1044.4	1062.8	1059.9	1039.2	983.9	905.6	817.5
65°	879.7	887.8	941.9	1001.8	1065.7	1085.8	1081.8	1054.1	986.8	907.9	813.5
67.5°	856.7	863.0	916.5	990.8	1051.8	1066.2	1073.1	1046.1	970.7	883.2	788.2
70°	809.5	819.3	871.1	947.1	1002.9	1013.3	1014.4	997.7	929.8	837.7	746.1
72.5°	744.4	752.5	808.9	886.0	934.4	946.5	947.6	922.3	871.1	775.5	685.7
75°	666.7	674.2	717.9	798.5	846.3	858.4	857.3	833.6	779.5	689.1	605.7
77.5°	570.5	584.4	622.9	689.1	735.8	742.1	743.3	717.3	673.6	595.3	514.1
80°	450.2	463.5	507.2	556.7	595.9	601.1	602.8	580.9	541.2	472.1	403.0
82.5°	320.1	331.6	366.2	406.5	439.3	439.3	440.4	422.6	392.1	332.8	278.6
85°	182.5	191.1	214.2	243.0	266.6	263.7	264.3	248.1	228.0	181.9	147.4
87.5°	59.9	63.9	69.1	80.0	91.0	84.1	87.5	72.5	65.6	48.9	38.0
90°	31.7	31.7	30.5	29.4	27.1	23.6	23.6	19.0	14.4	9.2	3.5
92.5°	28.8	28.8	27.6	26.5	24.2	21.3	21.3	17.3	12.7	8.1	2.9
95°	23.6	23.6	23.0	21.9	20.2	17.8	17.3	14.4	10.9	6.3	2.3
97.5°	18.4	18.4	17.8	17.3	15.5	13.8	13.8	10.9	8.1	5.2	1.7
100°	13.8	13.8	13.8	12.7	12.1	10.4	10.4	8.6	6.3	4.0	1.2
102.5°	9.8	10.4	9.8	9.2	8.6	7.5	7.5	6.3	4.6	2.9	1.2
105°	6.9	6.9	6.3	6.3	5.8	5.2	5.2	4.0	2.9	1.7	0.6
107.5°	4.0	4.0	4.0	4.0	3.5	3.5	3.5	2.9	1.7	1.2	0.6
110°	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.2	1.2	0.6	0.6

REPORT NUMBER: P436732

CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
112.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6
115°	0.6	0.6	0.6	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6
117.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
122.5°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
125°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
127.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
130°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
132.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
135°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
140°	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
142.5°	0.6	0.6	0.6	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6
145°	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
147.5°	0.6	0.6	0.6	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6
150°	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
160°	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
162.5°	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
165°	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
167.5°	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
170°	0.6	0.0	0.0	0.0	0.0	0.6	0.0	0.6	0.6	0.6	0.6
172.5°	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
175°	0.6	0.6	0.6	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
177.5°	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

REPORT NUMBER: P436732

CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6	194.6
2.5°	197.5	197.5	196.9	196.3	196.3	196.3	195.7	195.7	195.7	195.2	195.2
5°	202.1	201.5	201.5	200.9	200.9	200.4	200.4	199.8	199.2	199.2	198.6
7.5°	208.4	207.8	206.7	207.3	206.1	205.5	205.0	205.0	205.0	204.4	204.4
10°	215.9	215.9	214.7	214.7	213.6	213.0	212.4	212.4	213.0	213.0	212.4
12.5°	225.7	225.1	225.1	224.5	224.0	223.4	224.0	224.0	223.4	222.8	222.2
15°	237.8	237.8	237.8	238.3	237.8	237.8	237.8	237.2	236.0	234.9	234.9
17.5°	256.2	255.6	254.5	255.0	256.2	257.9	256.2	254.5	252.7	252.7	252.2
20°	275.2	275.8	275.8	276.3	278.1	279.8	277.5	276.3	275.2	274.0	272.9
22.5°	295.9	296.5	296.5	295.9	297.1	296.5	295.3	294.2	293.0	291.3	290.2
25°	316.1	316.6	316.1	315.5	316.1	314.3	312.6	310.9	308.0	305.1	305.1
27.5°	338.5	337.9	335.6	336.2	335.1	333.9	330.5	326.4	322.4	319.5	319.5
30°	362.1	362.1	357.5	359.8	357.5	356.9	349.5	344.3	338.5	334.5	333.9
32.5°	388.0	386.9	383.4	385.7	383.4	381.1	371.9	365.0	355.2	349.5	348.9
35°	419.1	416.2	413.4	415.7	415.7	409.3	400.1	387.5	373.6	366.7	366.2
37.5°	457.1	455.4	451.9	454.8	457.1	450.8	437.0	418.6	399.0	388.6	388.0
40°	499.2	496.8	495.1	499.2	500.9	494.5	476.1	450.2	423.7	408.8	406.5
42.5°	538.9	533.7	530.8	536.6	534.8	527.9	502.6	472.7	436.4	419.1	416.2
45°	574.6	568.8	564.8	570.0	567.7	553.8	525.6	485.3	441.6	420.3	416.8
47.5°	609.7	601.1	594.7	601.6	597.0	575.7	541.2	491.7	435.8	410.5	404.7
50°	639.6	629.3	625.2	633.3	626.4	596.4	552.1	488.8	421.4	384.6	375.4
52.5°	675.3	659.8	655.7	671.3	655.7	616.0	554.4	481.9	388.6	344.3	335.6
55°	711.6	694.3	688.0	702.4	678.8	620.1	542.9	442.2	339.1	291.9	279.2
57.5°	730.6	714.5	708.7	719.1	675.3	580.9	491.7	368.5	264.8	211.9	198.0
60°	747.9	719.7	712.2	726.0	639.6	489.9	380.6	264.3	160.1	120.3	110.0
62.5°	760.0	732.9	717.3	723.7	574.0	356.4	218.8	127.2	60.5	42.0	41.5
65°	753.6	730.6	720.2	715.6	498.6	205.0	80.6	32.2	1.7	1.7	1.2
67.5°	734.0	708.7	705.8	709.9	493.4	196.9	74.8	29.4	0.0	0.0	0.0
70°	690.9	673.0	673.0	686.8	470.9	186.5	69.7	27.1	0.0	0.0	0.0
72.5°	632.7	618.9	627.0	647.7	437.5	172.1	62.8	24.2	0.0	0.0	0.0
75°	563.1	548.7	559.0	582.1	396.1	153.7	54.7	20.7	0.0	0.0	0.0
77.5°	474.4	464.6	480.7	502.0	340.8	129.5	44.9	16.7	0.0	0.0	0.0
80°	369.6	364.4	385.7	404.7	275.2	101.9	34.0	12.1	0.0	0.0	0.0
82.5°	255.0	252.7	273.5	293.0	196.9	71.4	23.0	8.1	0.0	0.0	0.0
85°	133.6	133.6	149.7	167.5	110.0	38.6	11.5	3.5	0.0	0.0	0.0
87.5°	29.4	28.2	30.5	39.1	21.9	7.5	1.7	0.6	0.0	0.0	0.0
90°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
100°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
102.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
105°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
110°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0

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CATALOG NUMBER: TT-D1-735-U-5WQ-PM-HSS

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
115°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
117.5°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
120°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
122.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
125°	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

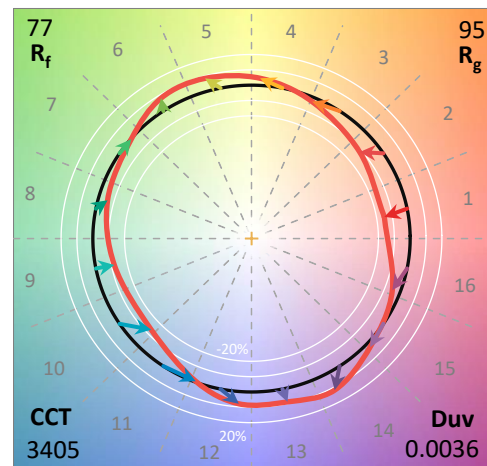
Data in this report applies to families of products including TT-D* and TTN-D*

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	CRI (Ra):	73.9		
CIE u':	0.2365	R1:	71.3	R9:	-18.0
CIE v':	0.5180	R2:	80.3	R10:	53.1
Duv:	0.0036	R3:	87.8	R11:	68.6
CIE x:	0.4148	R4:	73.2	R12:	42.6
CIE y:	0.4038	R5:	69.8	R13:	72.5
CIE z:	0.1814	R6:	71.8	R14:	92.7
Peak Wavelength (nm):	596	R7:	82.8	R15:	64.3
Dominant Wavelength (nm):	579	R8:	54.1		
Purity:	45.70672				
Rf:	76.6				
Rg:	95.4				



Test Conditions

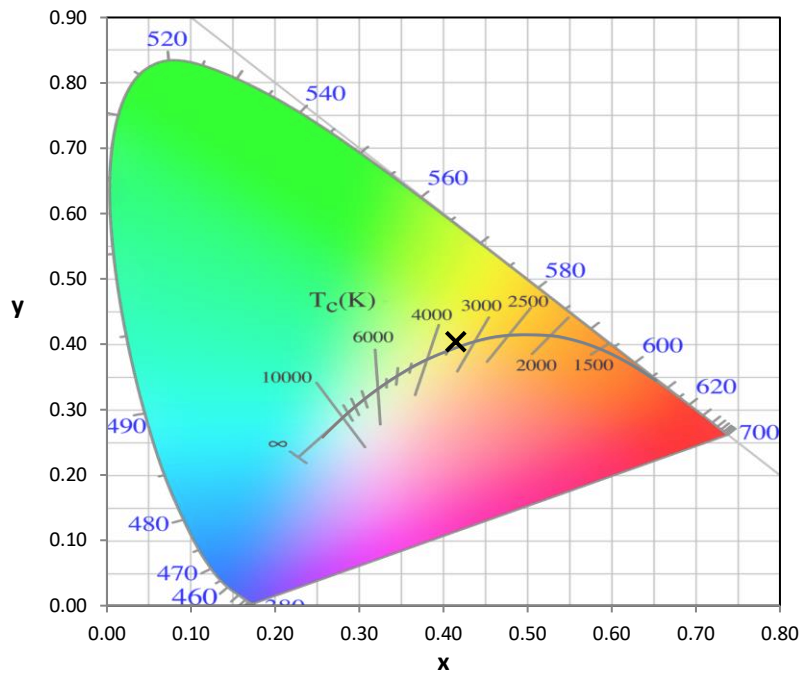
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

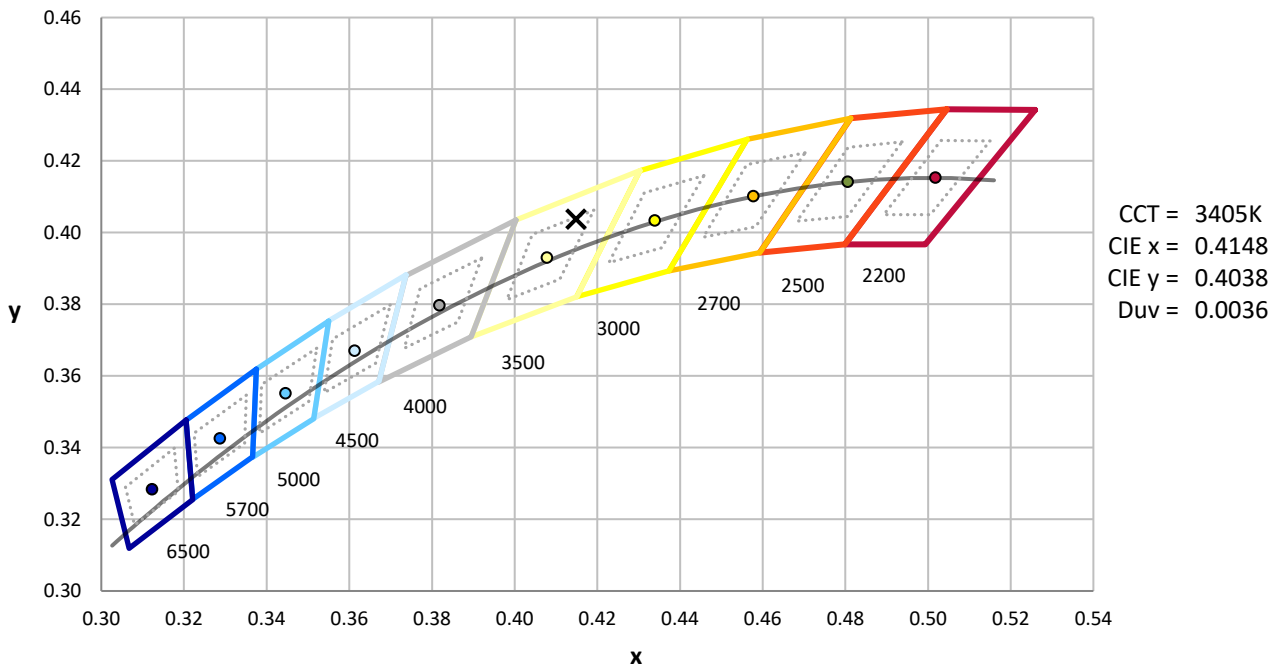
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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



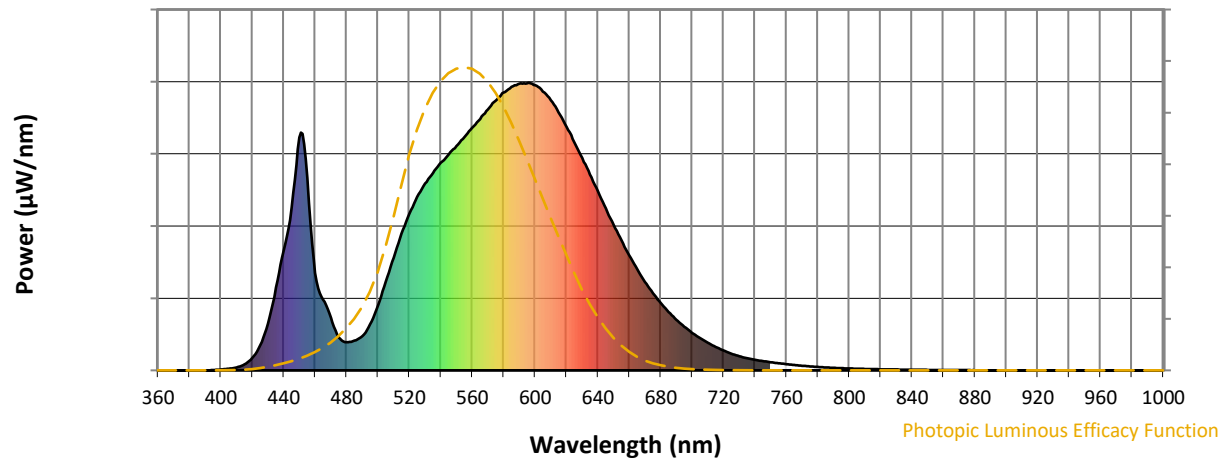
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2411-284-1

Photopic Flux vs. Wavelength

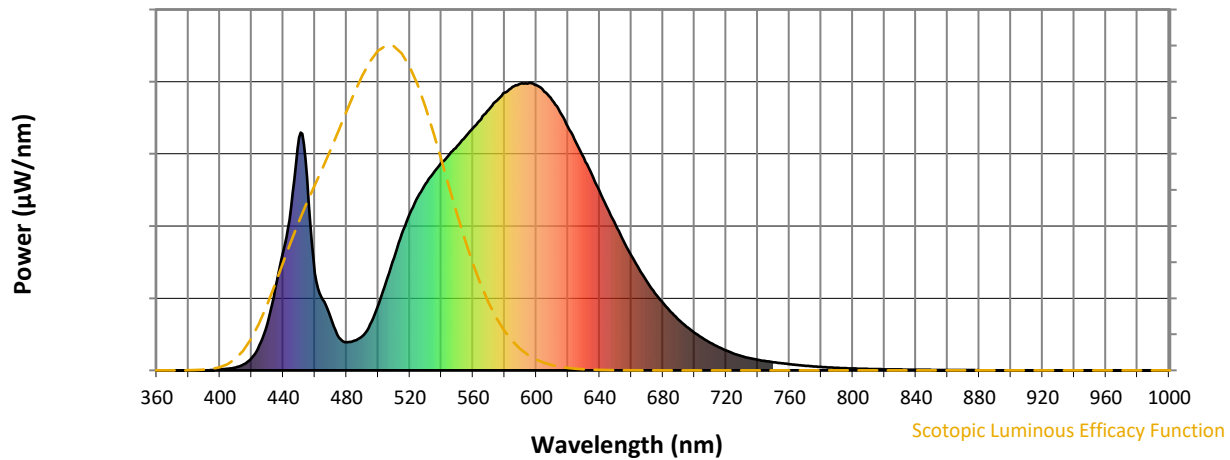


Photopic Lumens: NR

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	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



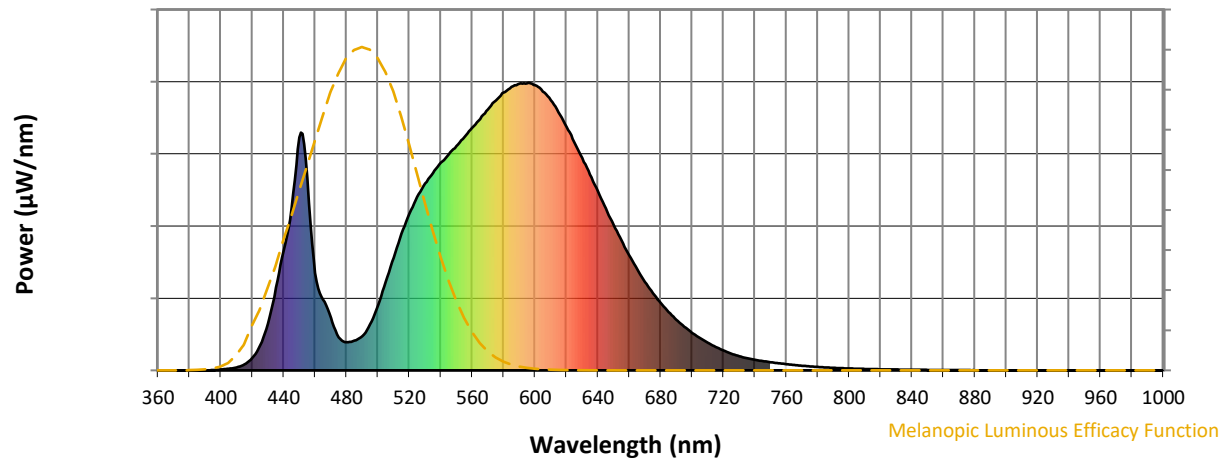
Scotopic Lumens: NR

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

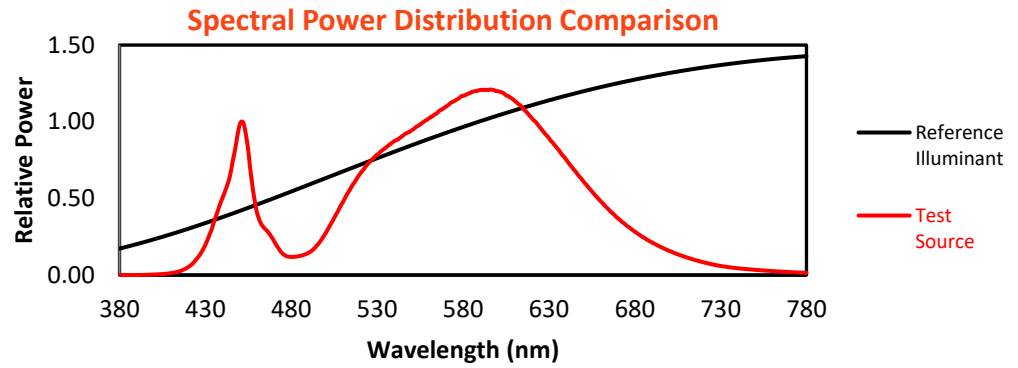
λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	119	NR	620	846	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

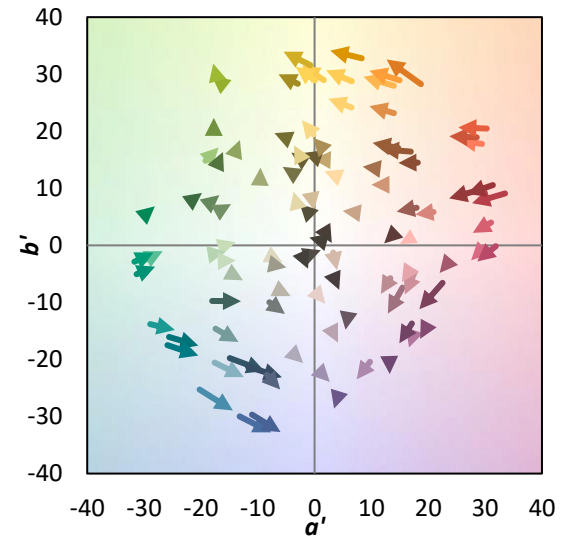
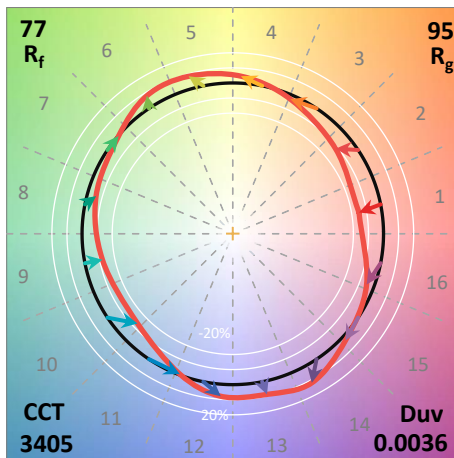
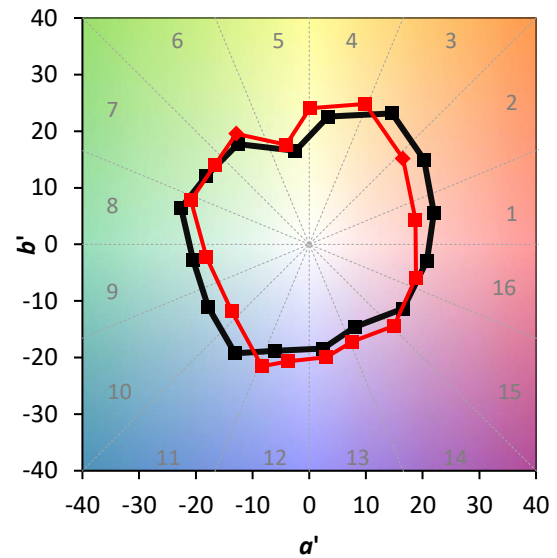
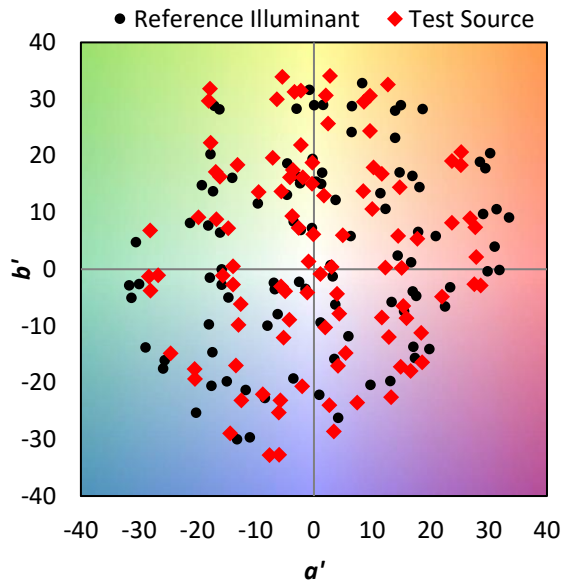
TM-30-18

Summary

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

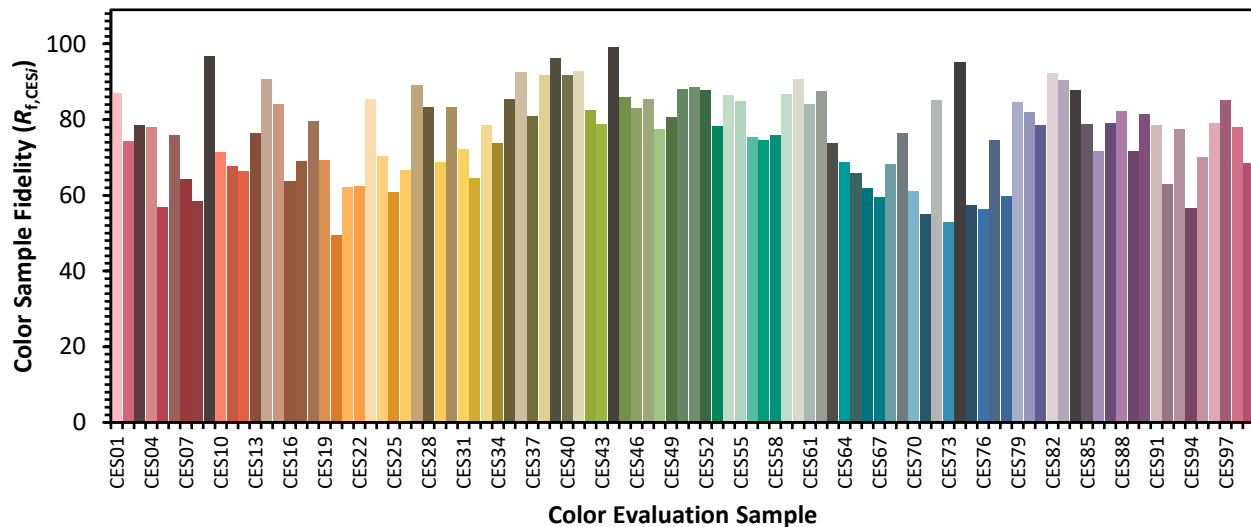


Color Vector Graphics

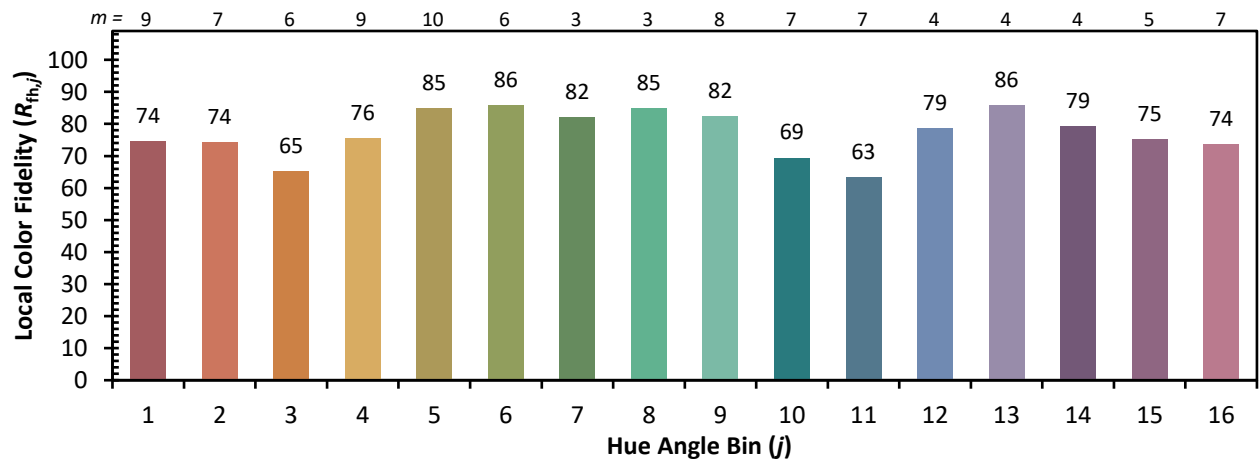
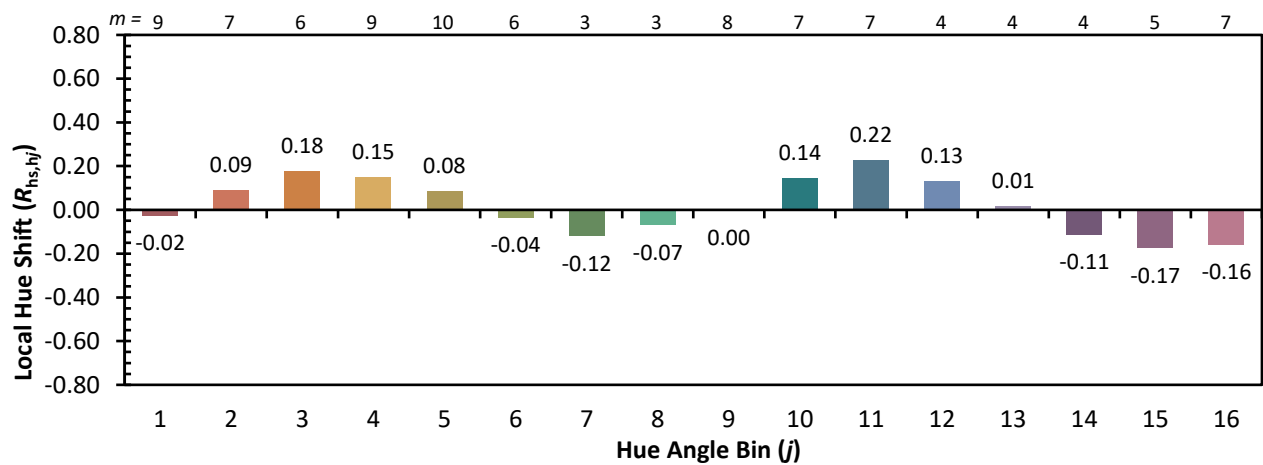
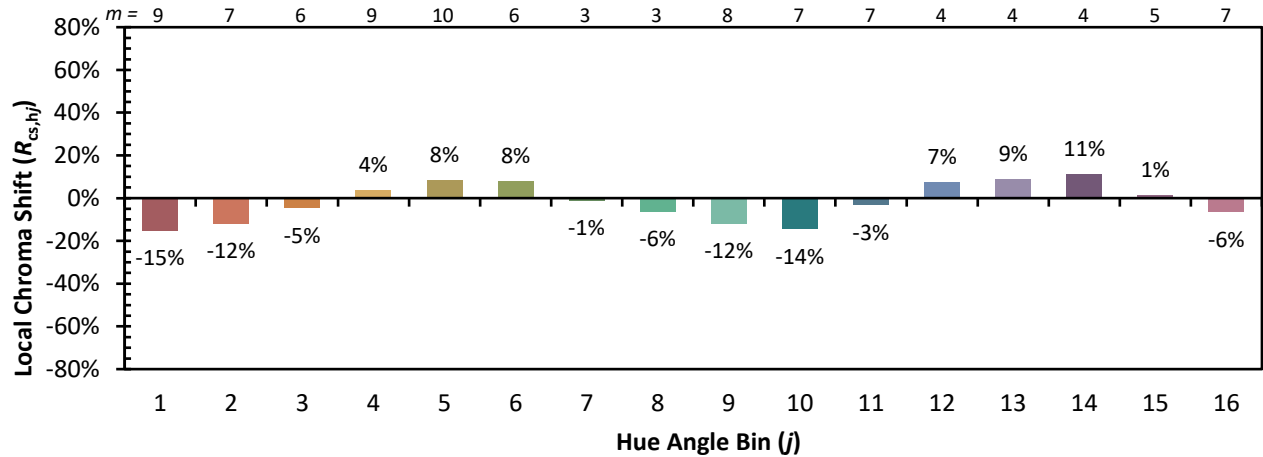


Individual Sample Fidelity Index ($R_{f,i}$)

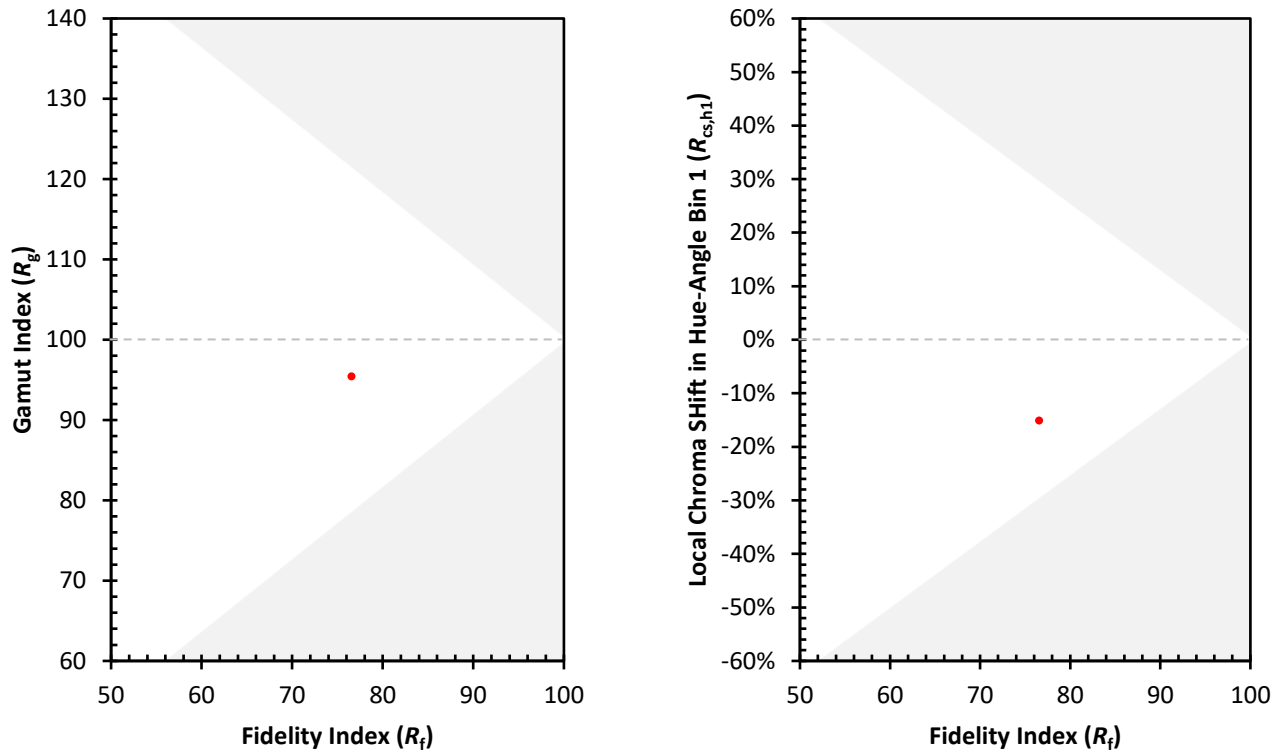
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)