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

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: INVUE

Report Number: P1442036

Luminaire Tested: ABB-C2-830-X-U-S-GM

Issue Date: 4/23/2026

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Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-2024
Report Number:	P1442036
	TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G2-2509-539-30)
Test Lab:	COOPER LIGHTING SOLUTIONS
Issue Date:	4/24/2026
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	INVUE
Catalog Number:	ABB-C2-830-X-U-S-GM
Description:	ARBOR OUTDOOR ARCHITECTURAL BOLLARD LUMINAIRE
	SYMMETRIC OPTIC, GRAPHITE METALLIC PAINTED FINISH
Light Source:	3000K CCT, 80 CRI LEDS
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	1135.5 lumens
Efficiency:	N/A
Efficacy:	41.4 lumens/watt
Luminous Opening:	Circular (Dia: 0.4' x H: 0')
IES Classification:	Type III - Short
BUG Rating:	B1 - U0 - G1

Input Watts (W):	27.4
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.9937
Total Harmonic Distortion (THDi):	0.0861672
Frequency (hertz):	60
Stabilization Time:	0.5 HR
Operation Time:	3 HR
Ambient Temperature (°C):	NR
Test Distance:	28.75 FT

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REPORT NUMBER: P1442036
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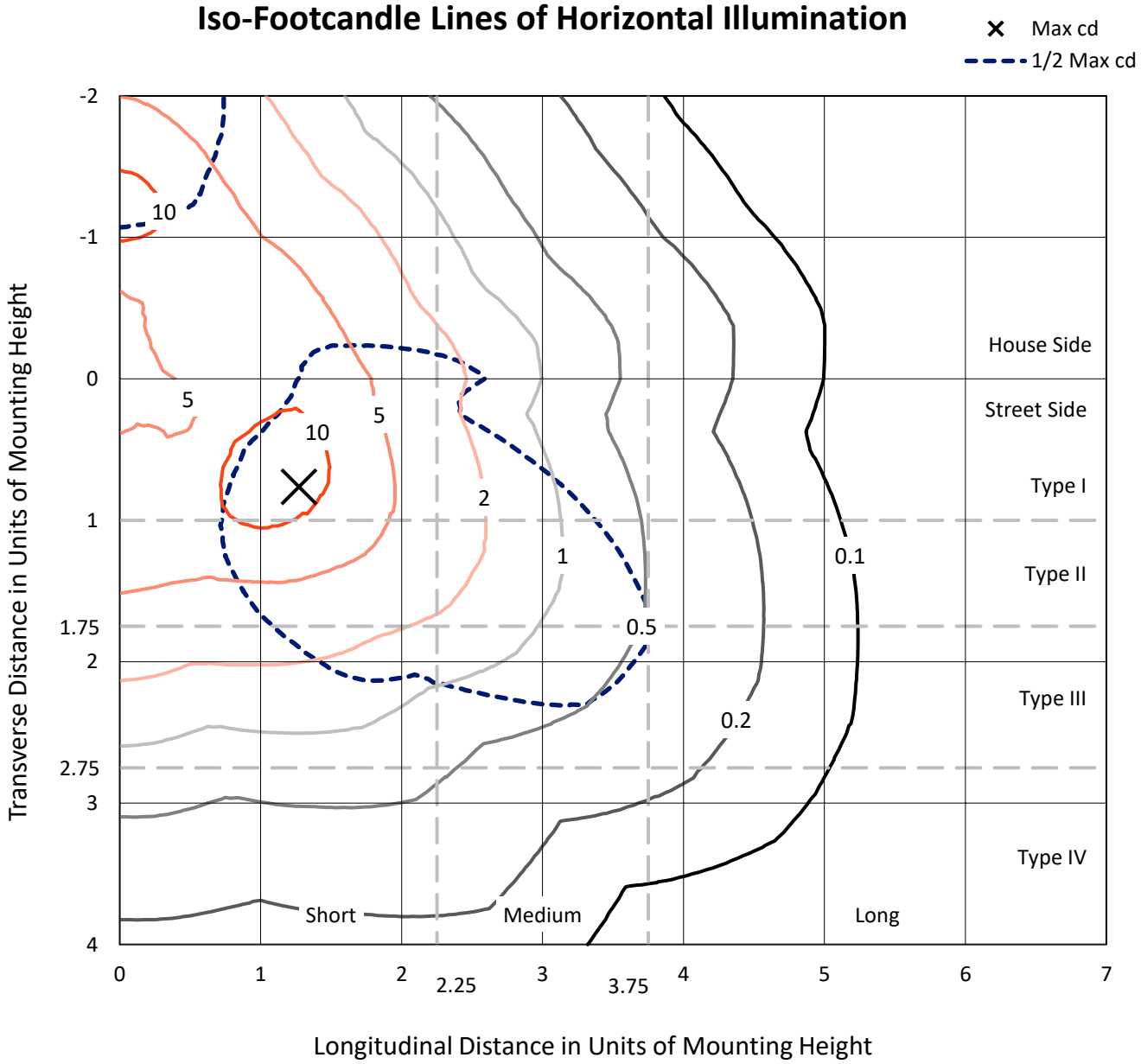
Iso-Footcandle Lines of Horizontal Illumination



Based on 3 foot mounting height. Maximum calculated value = 15.5 fc
Type III - Short - N/A

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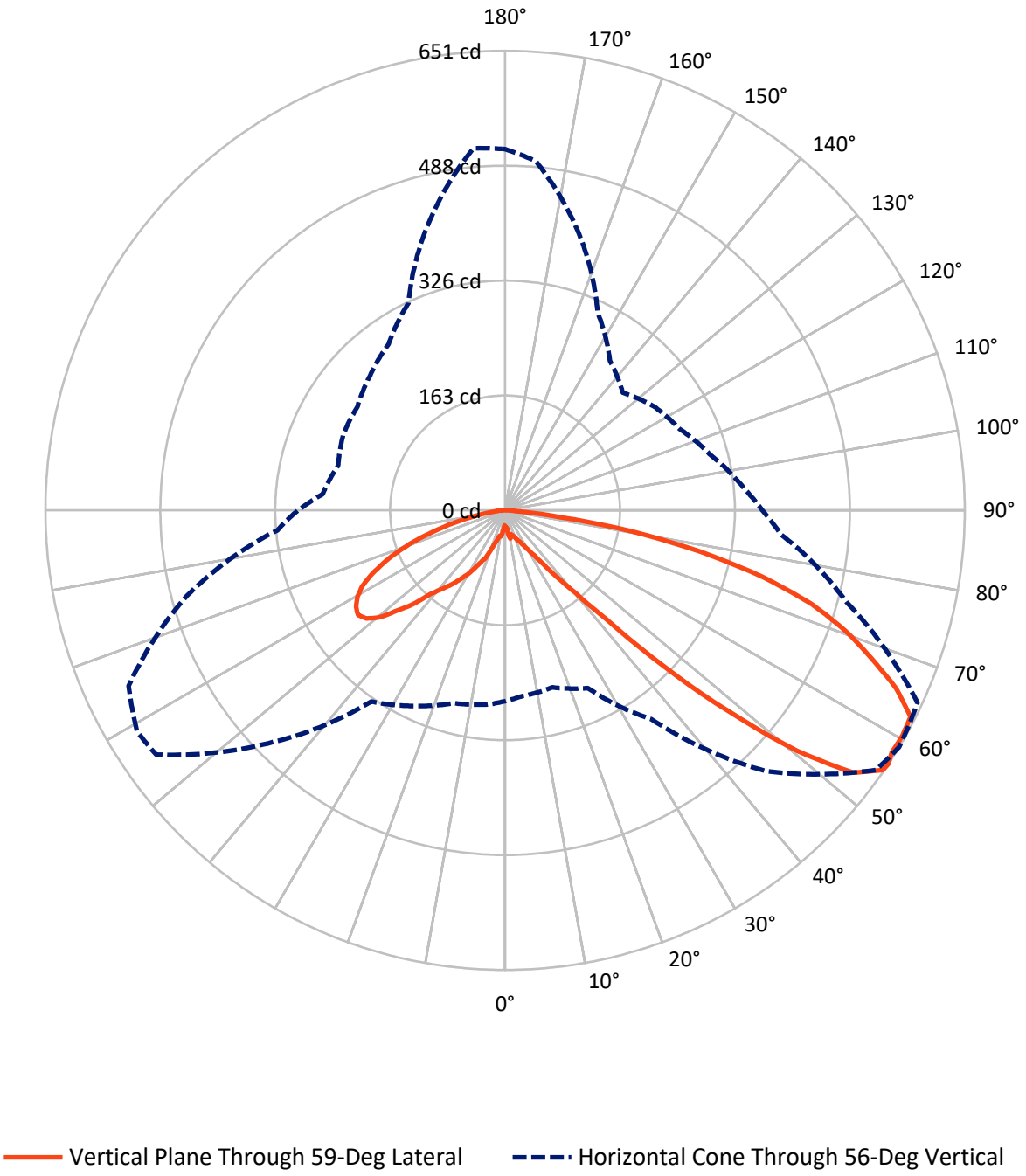
Luminous Intensity Polar Plot



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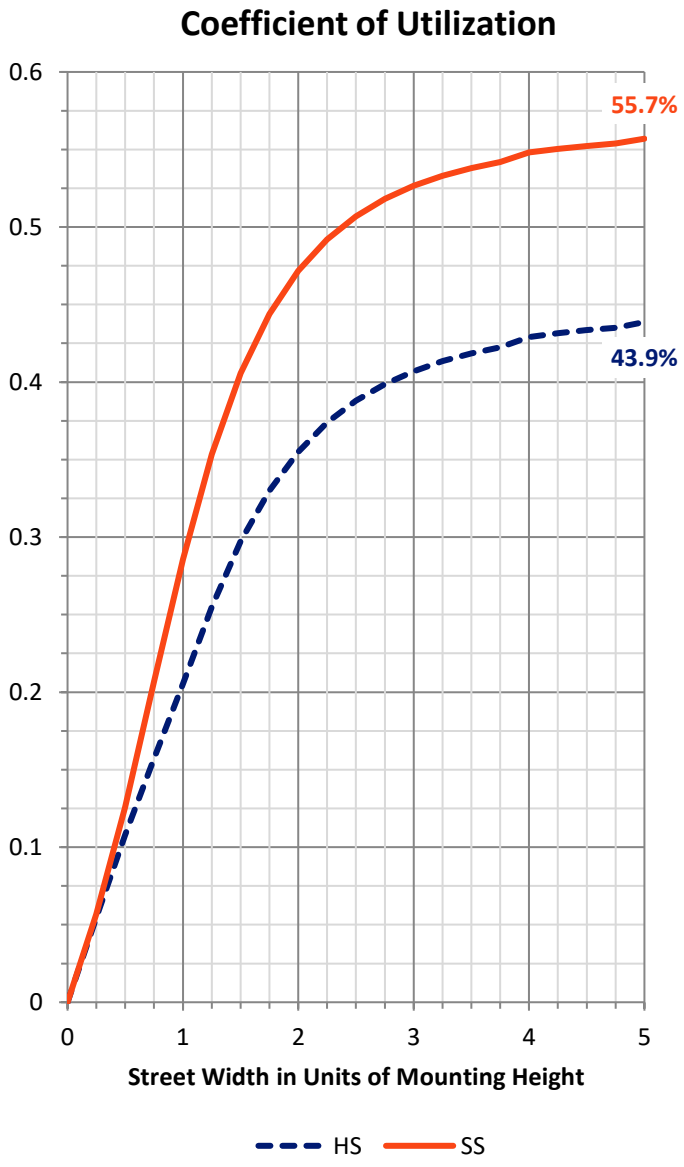
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	499.3	0.0	499.3
	% Fixture	44.0	0.0	44.0
Street Side	Lumens	636.1	0.0	636.1
	% Fixture	56.0	0.0	56.0
Total	Lumens	1135.5	0.0	1135.5
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	2.9	0.3
10°-20°	12.2	1.1
20°-30°	30.1	2.7
30°-40°	66.3	5.8
40°-50°	164.6	14.5
50°-60°	317.6	28.0
60°-70°	322.2	28.4
70°-80°	191.8	16.9
80°-90°	27.8	2.5
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	1135.5	100.0
0°-180°	1135.5	100.0



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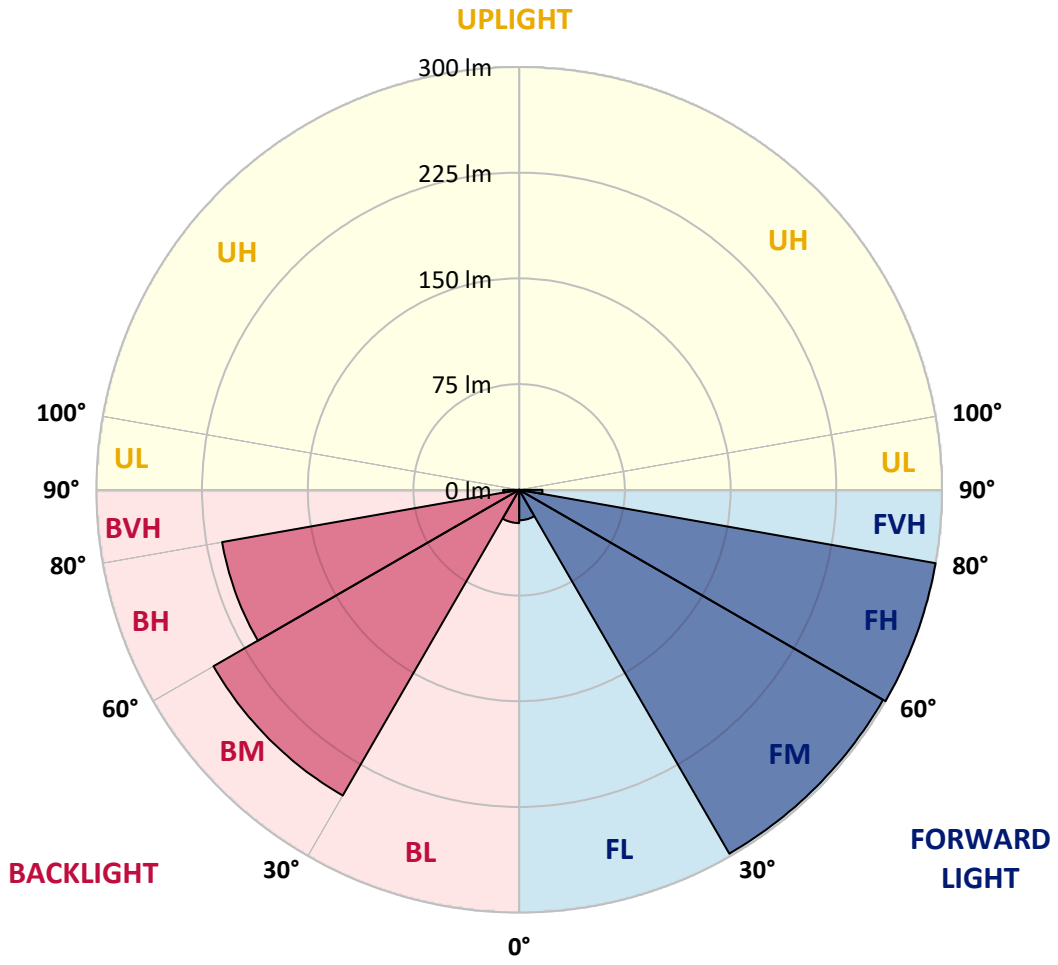
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	21.6	1.9			
FM	(30°-60°)	298.1	26.3			
FH	(60°-80°)	300.0	26.4			G0/660
FVH	(80°-90°)	16.5	1.5			G1/100
BL	(0°-30°)	23.6	2.1	B0/110		
BM	(30°-60°)	250.4	22.1	B1/1000		
BH	(60°-80°)	214.0	18.8	B1/500		G1/500
BVH	(80°-90°)	11.3	1.0			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G1
Type III Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	59°	65°	75°	85°
0°	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
2.5°	27.2	28.0	30.5	30.5	29.7	28.0	26.4	26.4	25.5	23.9	22.2
5°	39.6	36.3	31.3	31.3	31.3	28.8	25.5	24.7	24.7	22.2	21.4
7.5°	38.7	41.2	42.8	41.2	40.4	40.4	36.3	35.4	31.3	28.8	31.3
10°	39.6	39.6	38.7	46.1	42.8	43.7	40.4	40.4	37.9	37.1	37.1
12.5°	37.9	36.3	38.7	42.0	37.9	41.2	37.1	34.6	34.6	37.1	39.6
15°	38.7	40.4	41.2	46.1	44.5	42.0	37.1	37.1	37.9	42.8	42.8
17.5°	44.5	47.8	47.8	48.6	48.6	44.5	37.1	37.9	40.4	43.7	48.6
20°	51.9	51.9	52.7	51.9	51.9	47.8	39.6	41.2	43.7	46.1	51.1
22.5°	60.2	61.8	65.1	60.2	58.5	50.3	47.0	46.1	50.3	48.6	55.2
25°	75.0	79.9	75.0	64.3	63.4	54.4	49.4	49.4	52.7	58.5	59.3
27.5°	89.8	92.3	79.9	69.2	70.9	61.0	56.9	56.9	59.3	65.9	69.2
30°	97.2	99.7	89.0	76.6	78.3	69.2	63.4	64.3	65.9	74.2	82.4
32.5°	107.1	111.2	98.9	86.5	87.3	85.7	76.6	76.6	74.2	82.4	89.0
35°	121.1	120.3	107.9	94.8	97.2	102.2	95.6	93.9	89.8	91.5	101.4
37.5°	131.8	131.8	122.0	106.3	107.9	119.5	120.3	120.3	112.1	105.5	113.7
40°	142.6	146.7	134.3	117.8	127.7	145.0	152.4	154.1	140.9	124.4	126.9
42.5°	155.7	163.2	153.3	137.6	156.6	189.5	206.8	210.9	188.7	166.4	150.8
45°	187.0	195.3	187.0	170.6	196.1	254.6	290.9	314.8	276.9	217.5	192.8
47.5°	208.5	214.2	206.8	193.6	232.4	315.6	377.4	424.4	386.5	283.5	238.1
50°	239.8	239.8	236.5	234.0	291.7	426.8	509.2	535.6	523.2	373.3	309.8
52.5°	257.1	255.4	253.8	261.2	333.7	478.7	589.2	617.2	609.8	444.1	358.4
55°	267.8	264.5	259.6	275.2	356.0	516.6	635.3	649.3	641.9	488.6	384.8
56°	270.3	264.5	259.6	277.7	360.9	522.4	641.1	651.0	644.4	500.2	392.2
57.5°	269.4	262.9	256.3	280.2	362.6	523.2	641.1	646.0	646.8	509.2	398.8
60°	262.9	257.1	246.4	280.2	365.0	511.7	633.7	646.8	651.0	510.1	401.3
62.5°	253.0	249.7	233.2	276.0	361.7	487.8	628.7	644.4	641.9	498.5	387.3
65°	234.8	231.5	212.6	267.0	343.6	449.9	595.8	608.9	600.7	471.3	351.8
67.5°	210.1	206.8	189.5	250.5	325.5	405.4	549.6	559.5	557.0	440.8	313.9
70°	181.3	179.6	166.4	229.1	304.9	354.3	500.2	511.7	515.8	398.8	276.0
72.5°	150.0	151.6	141.7	201.1	275.2	298.3	438.4	454.0	460.6	349.4	231.5
75°	115.4	117.0	113.7	167.3	236.5	234.0	363.4	377.4	384.0	289.2	182.1
77.5°	82.4	82.4	82.4	126.9	188.7	160.7	274.4	284.3	293.3	215.1	129.4
80°	53.6	51.1	52.7	80.8	124.4	93.9	173.9	182.9	181.3	131.8	75.8
82.5°	31.3	28.8	28.8	37.9	50.3	40.4	77.5	79.1	80.8	52.7	33.0
85°	15.7	14.0	13.2	14.8	14.0	15.7	15.7	14.8	14.8	10.7	13.2
87.5°	11.5	9.9	9.1	10.7	9.9	12.4	11.5	11.5	11.5	7.4	9.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
2.5°	21.4	21.4	19.8	19.0	18.1	20.6	23.1	23.1	22.2	22.2	22.2
5°	22.2	23.1	25.5	29.7	30.5	28.0	26.4	23.9	21.4	19.8	19.0
7.5°	32.1	33.0	32.1	33.8	33.8	31.3	32.1	31.3	27.2	26.4	25.5
10°	37.9	38.7	43.7	42.0	40.4	38.7	38.7	37.1	33.8	32.1	30.5
12.5°	41.2	42.0	43.7	40.4	44.5	42.8	42.0	37.9	36.3	33.0	33.0
15°	42.8	47.0	47.8	47.8	45.3	47.0	43.7	40.4	39.6	33.8	33.0
17.5°	51.1	51.1	53.6	52.7	48.6	51.9	49.4	46.1	42.0	36.3	36.3
20°	52.7	58.5	59.3	60.2	57.7	57.7	59.3	55.2	48.6	45.3	44.5
22.5°	58.5	64.3	67.6	72.5	65.9	66.7	65.1	56.0	47.8	48.6	46.1
25°	63.4	67.6	71.7	82.4	76.6	70.0	70.0	62.6	54.4	53.6	51.9
27.5°	72.5	76.6	84.9	97.2	84.0	79.1	75.8	70.0	61.0	59.3	59.3
30°	87.3	87.3	97.2	104.6	102.2	83.2	84.0	75.8	69.2	65.1	66.7
32.5°	101.4	99.7	110.4	114.5	113.7	91.5	90.6	85.7	83.2	76.6	75.8
35°	111.2	118.7	120.3	125.2	122.8	107.1	98.1	94.8	94.8	91.5	91.5
37.5°	123.6	131.0	133.5	136.8	133.5	119.5	110.4	106.3	110.4	113.7	110.4
40°	139.3	150.0	146.7	148.3	145.0	133.5	126.9	124.4	135.1	145.0	140.1
42.5°	159.0	172.2	167.3	163.2	160.7	148.3	146.7	152.4	173.9	189.5	186.2
45°	196.1	207.6	198.6	192.0	188.7	173.9	175.5	192.0	232.4	260.4	269.4
47.5°	234.0	236.5	228.2	216.7	213.4	192.8	196.9	227.4	287.6	328.8	341.1
50°	295.8	296.6	271.1	246.4	236.5	220.8	228.2	273.6	350.2	398.8	418.6
52.5°	342.0	328.0	292.5	266.2	252.1	234.8	246.4	303.2	388.9	454.0	473.8
55°	360.1	337.8	302.4	273.6	257.1	237.3	257.1	310.6	403.8	491.1	510.1
56°	*364.2*	*341.1*	*301.6*	*272.7*	*257.1*	*235.7*	*258.7*	*309.8*	*405.4*	*496.9*	*511.7*
57.5°	370.8	340.3	298.3	271.1	253.8	231.5	257.9	307.4	403.8	499.3	514.2
60°	384.0	340.3	286.8	264.5	246.4	224.1	255.4	307.4	398.0	492.8	515.0
62.5°	385.6	337.0	269.4	248.8	236.5	213.4	245.6	304.9	383.2	486.2	512.5
65°	367.5	328.0	244.7	227.4	215.9	196.1	229.1	293.3	357.6	464.7	478.7
67.5°	342.0	313.1	217.5	201.1	190.3	173.9	210.1	273.6	321.4	420.2	431.0
70°	311.5	294.2	189.5	171.4	163.2	150.0	187.9	250.5	273.6	370.8	385.6
72.5°	264.5	258.7	165.6	139.3	131.8	125.2	159.9	221.7	222.5	318.1	333.7
75°	209.3	210.1	134.3	106.3	99.7	98.9	126.9	182.1	170.6	253.8	266.2
77.5°	149.1	153.3	98.9	76.6	68.4	71.7	90.6	136.8	119.5	183.8	192.0
80°	84.9	87.3	61.0	50.3	42.0	46.1	55.2	84.9	70.0	111.2	116.2
82.5°	29.7	30.5	29.7	28.8	25.5	24.7	27.2	33.8	29.7	43.7	47.0
85°	11.5	10.7	14.8	14.8	12.4	12.4	13.2	13.2	15.7	14.8	14.0
87.5°	9.1	7.4	11.5	11.5	9.9	9.9	9.9	9.9	12.4	11.5	11.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	185°	195°	205°	215°	225°	235°	245°	255°	265°	270°	275°
0°	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
2.5°	23.1	23.9	23.9	23.1	21.4	21.4	21.4	21.4	22.2	23.1	23.1
5°	19.8	21.4	23.1	23.1	25.5	26.4	25.5	23.9	19.8	19.0	19.8
7.5°	26.4	29.7	26.4	26.4	28.8	34.6	32.1	31.3	28.0	24.7	23.1
10°	32.1	38.7	34.6	37.9	40.4	38.7	35.4	32.1	37.9	36.3	35.4
12.5°	33.0	36.3	37.9	44.5	48.6	37.9	35.4	38.7	39.6	37.1	34.6
15°	33.8	40.4	42.8	47.0	51.1	45.3	37.1	41.2	44.5	42.0	40.4
17.5°	37.1	42.8	45.3	51.9	56.0	52.7	42.8	45.3	48.6	51.9	48.6
20°	42.0	45.3	47.8	55.2	57.7	61.8	51.9	51.9	50.3	54.4	52.7
22.5°	48.6	54.4	53.6	61.0	61.8	74.2	67.6	55.2	51.9	56.0	56.9
25°	51.1	56.9	60.2	65.9	69.2	80.8	76.6	65.9	60.2	61.0	61.0
27.5°	59.3	64.3	68.4	72.5	81.6	86.5	92.3	73.3	68.4	67.6	67.6
30°	64.3	70.9	75.8	84.9	93.1	98.1	105.5	80.8	74.2	73.3	74.2
32.5°	75.8	77.5	84.9	97.2	101.4	111.2	112.9	91.5	83.2	81.6	81.6
35°	87.3	88.2	93.1	110.4	112.9	125.2	120.3	103.8	92.3	89.8	90.6
37.5°	108.8	102.2	105.5	122.0	126.9	136.8	131.0	116.2	104.6	102.2	103.8
40°	134.3	122.8	117.8	139.3	139.3	148.3	142.6	131.0	120.3	116.2	120.3
42.5°	178.0	145.8	140.1	158.2	158.2	163.2	156.6	148.3	140.9	140.9	147.5
45°	262.0	200.2	182.9	193.6	190.3	189.5	182.1	178.0	170.6	172.2	184.6
47.5°	342.0	253.0	215.1	228.2	221.7	209.3	203.5	198.6	191.2	198.6	218.4
50°	408.7	323.8	277.7	264.5	253.8	234.0	231.5	226.6	228.2	244.7	267.8
52.5°	477.1	384.0	310.6	285.9	270.3	250.5	246.4	241.4	248.8	277.7	302.4
55°	514.2	416.1	322.2	289.2	271.9	257.1	253.0	245.6	259.6	291.7	322.2
56°	*515.0*	*420.2*	*323.8*	*287.6*	*270.3*	*255.4*	*253.0*	*244.7*	*259.6*	*293.3*	*323.8*
57.5°	511.7	423.5	322.2	285.9	265.3	252.1	250.5	240.6	259.6	295.8	327.1
60°	502.6	420.2	315.6	285.1	253.8	242.3	243.1	229.1	255.4	299.1	331.2
62.5°	505.9	409.5	302.4	276.0	234.8	227.4	232.4	216.7	244.7	299.9	328.0
65°	482.0	393.0	280.2	260.4	212.6	204.4	213.4	195.3	230.7	287.6	313.1
67.5°	436.7	359.3	253.0	242.3	187.9	179.6	189.5	171.4	210.9	269.4	295.8
70°	385.6	314.8	222.5	215.1	164.0	151.6	162.3	145.8	187.9	248.8	276.0
72.5°	333.7	263.7	182.1	180.5	140.1	121.1	131.8	124.4	162.3	218.4	244.7
75°	267.0	206.0	139.3	140.1	110.4	91.5	98.1	94.8	131.0	179.6	203.5
77.5°	193.6	145.0	95.6	97.2	79.1	63.4	67.6	71.7	96.4	136.0	156.6
80°	115.4	83.2	55.2	58.5	47.8	41.2	41.2	43.7	59.3	84.9	98.1
82.5°	42.8	27.2	24.7	22.2	23.1	22.2	23.9	24.7	27.2	34.6	33.8
85°	14.0	9.1	11.5	9.9	12.4	12.4	11.5	10.7	11.5	11.5	11.5
87.5°	11.5	7.4	9.1	7.4	9.9	10.7	9.1	8.2	9.1	9.1	8.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Scaled Data Report

REPORT NUMBER: P1442036
CATALOG NUMBER: ABB-C2-830-X-U-S-GM

CANDELA DISTRIBUTION (continued):

	285°	295°	301°	305°	315°	325°	335°	345°	355°	360°
0°	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1
2.5°	22.2	23.1	23.1	23.9	26.4	27.2	27.2	27.2	27.2	27.2
5°	20.6	19.0	19.0	18.1	19.8	22.2	25.5	28.8	34.6	39.6
7.5°	24.7	24.7	24.7	23.9	23.9	25.5	28.8	33.0	37.9	38.7
10°	33.8	33.0	31.3	33.0	33.0	29.7	34.6	40.4	43.7	39.6
12.5°	34.6	32.1	29.7	30.5	32.1	33.0	40.4	45.3	37.1	37.9
15°	37.1	35.4	33.8	33.0	33.0	38.7	43.7	47.8	38.7	38.7
17.5°	41.2	36.3	34.6	35.4	37.9	42.0	47.8	48.6	43.7	44.5
20°	44.5	39.6	38.7	39.6	41.2	48.6	49.4	52.7	51.9	51.9
22.5°	48.6	42.0	41.2	41.2	46.1	52.7	56.0	63.4	56.0	60.2
25°	52.7	47.0	47.0	46.1	50.3	56.9	63.4	68.4	70.0	75.0
27.5°	60.2	55.2	54.4	54.4	55.2	62.6	73.3	76.6	86.5	89.8
30°	68.4	67.6	63.4	62.6	63.4	67.6	80.8	92.3	102.2	97.2
32.5°	79.9	80.8	75.8	78.3	72.5	76.6	90.6	103.8	108.8	107.1
35°	93.9	95.6	91.5	91.5	85.7	88.2	101.4	117.0	122.8	121.1
37.5°	116.2	116.2	111.2	109.6	99.7	99.7	115.4	127.7	134.3	131.8
40°	141.7	149.1	140.9	133.5	117.8	114.5	131.0	139.3	146.7	142.6
42.5°	179.6	190.3	188.7	179.6	140.1	131.0	149.1	157.4	160.7	155.7
45°	241.4	275.2	281.8	270.3	195.3	170.6	188.7	194.5	192.8	187.0
47.5°	298.3	347.7	358.4	356.0	258.7	202.7	217.5	222.5	216.7	208.5
50°	385.6	462.3	467.2	466.4	351.8	258.7	262.0	258.7	247.2	239.8
52.5°	433.4	535.6	549.6	545.5	412.0	302.4	291.7	276.9	267.0	257.1
55°	459.8	582.6	605.6	599.0	454.0	328.0	304.9	284.3	274.4	267.8
56°	*466.4*	*588.3*	*608.1*	*603.2*	*463.9*	*330.4*	*305.7*	*282.6*	*276.0*	*270.3*
57.5°	468.9	589.2	602.3	599.9	473.0	331.2	305.7	279.3	273.6	269.4
60°	456.5	580.9	592.5	586.7	476.3	329.6	304.1	267.8	266.2	262.9
62.5°	427.7	574.3	598.2	590.0	470.5	318.1	303.2	250.5	253.0	253.0
65°	396.3	545.5	571.0	565.3	450.7	295.0	296.6	229.1	229.1	234.8
67.5°	356.0	498.5	519.1	519.1	417.8	262.0	281.8	206.8	201.1	210.1
70°	303.2	443.3	467.2	464.7	375.7	228.2	262.9	182.9	171.4	181.3
72.5°	248.0	381.5	412.0	408.7	326.3	192.0	232.4	159.9	140.1	150.0
75°	191.2	309.8	337.8	335.4	271.1	152.4	192.0	134.3	108.8	115.4
77.5°	127.7	232.4	254.6	253.0	205.2	108.8	144.2	101.4	78.3	82.4
80°	73.3	150.0	165.6	164.8	131.8	66.7	89.8	65.1	53.6	53.6
82.5°	28.0	68.4	75.0	75.0	57.7	31.3	37.1	33.0	31.3	31.3
85°	13.2	14.8	14.8	14.8	11.5	12.4	12.4	15.7	15.7	15.7
87.5°	10.7	10.7	10.7	11.5	8.2	9.1	8.2	11.5	12.4	11.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Invue

Report Number: SP1-2509-539-5

Test Date: 04/14/2026

Luminaire Tested: Luxscape Bollard

Data in this report applies to families of products including ;Luxscape

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.05

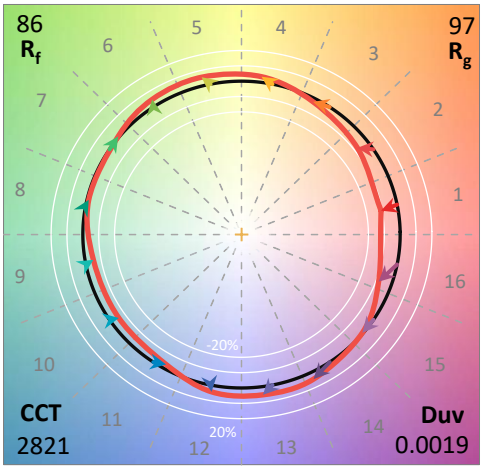
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2509-539-5
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	04/15/2026
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Invue
Catalog Number:	**Luxscape Bollard**
Description:	ARB-C1-830-LED-XX-Dx-S-GM-SPECULAR REFLECTOR

Spectral Parameters

CCT (K):	2821
CIE u':	0.2567
CIE v':	0.5277
Duv:	0.0019
CIE x:	0.4533
CIE y:	0.4141
CIE z:	0.1326
Peak Wavelength (nm):	607
Dominant Wavelength (nm):	583
Purity:	60.36315
Rf:	86.1
Rg:	97.2

CRI (Ra):	83.8				
R1:	82.0	R9:	8.2		
R2:	90.6	R10:	79.9		
R3:	97.7	R11:	85.5		
R4:	84.0	R12:	78.4		
R5:	82.7	R13:	83.9		
R6:	90.4	R14:	99.2		
R7:	83.6	R15:	73.1		
R8:	59.4				



Test Conditions

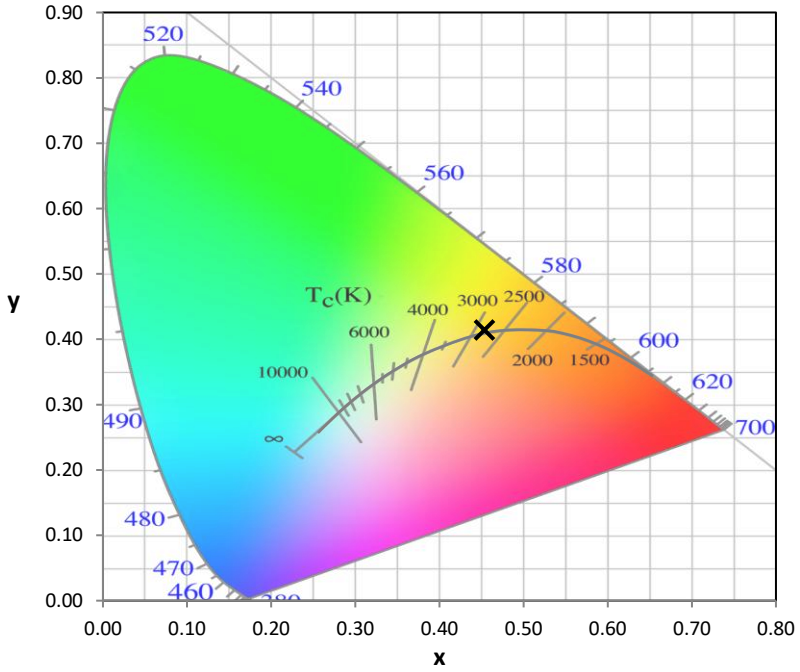
Stabilization Time:	28M
Operation Time:	1H 28M
Sphere Temperature (°C):	25.1

REPORT NUMBER: SP1-2509-539-5

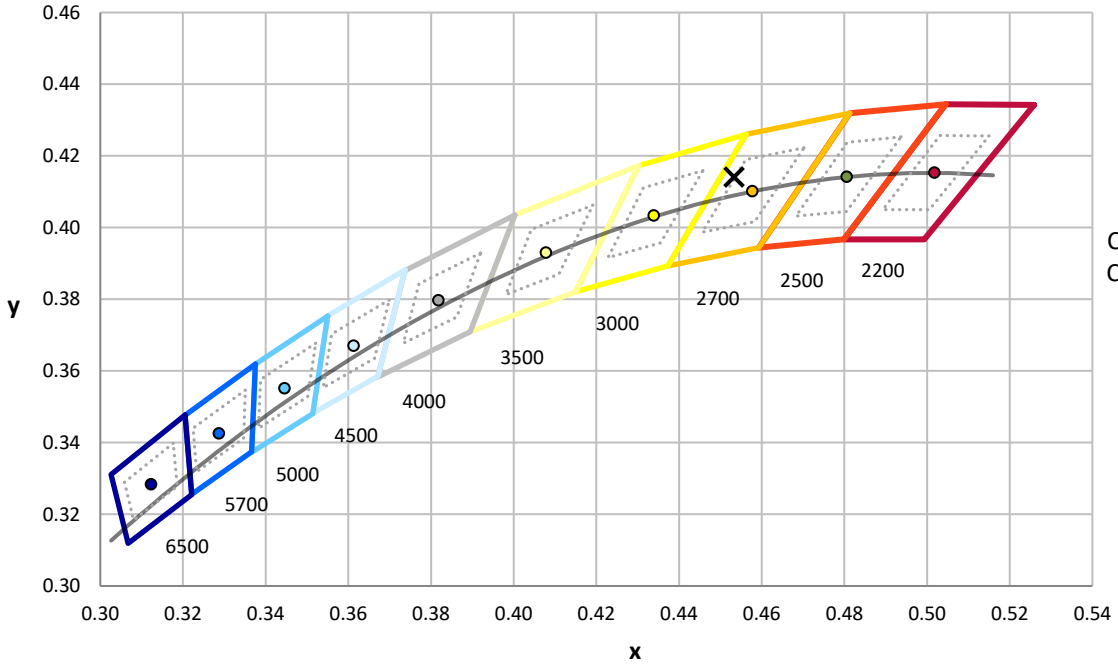
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	12/16/2025	6/16/2026
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208	10/21/2025	10/21/2026
Sphere Thermometer	ONSET IN0085	10/21/2025	10/21/2026
Room Thermometer	ONSET IN0046	10/21/2025	10/21/2026

REPORT NUMBER: SP1-2509-539-5

CIE 1931 Chromaticity Diagram



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

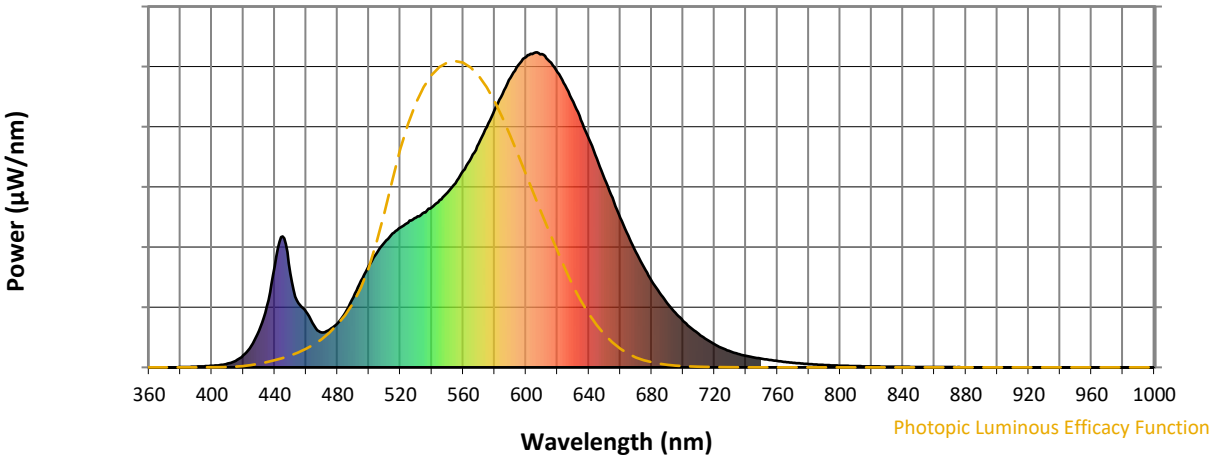


CCT = 2821K
CIE x = 0.4533
CIE y = 0.4141
Duv = 0.0019

Point lies inside the ANSI 2700K 7-step quadrangle

REPORT NUMBER: SP1-2509-539-5

Photopic Flux vs. Wavelength

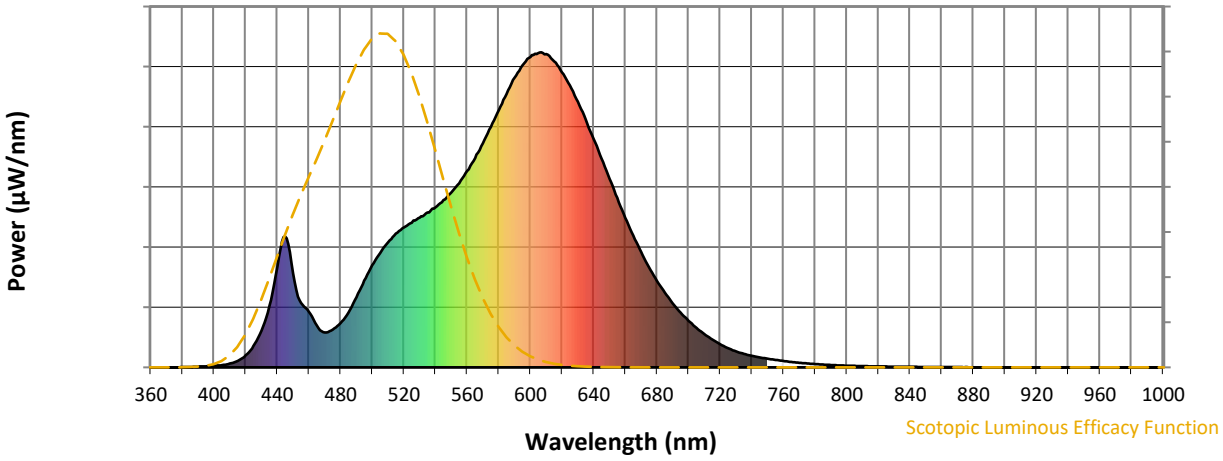


Photopic Lumens: NR

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	223	NR	620	936	NR	750	28	NR	880	0	NR
365	0	NR	495	275	NR	625	895	NR	755	24	NR	885	0	NR
370	0	NR	500	324	NR	630	843	NR	760	20	NR	890	0	NR
375	0	NR	505	363	NR	635	786	NR	765	17	NR	895	0	NR
380	1	NR	510	397	NR	640	725	NR	770	15	NR	900	0	NR
385	1	NR	515	425	NR	645	663	NR	775	12	NR	905	0	NR
390	2	NR	520	444	NR	650	599	NR	780	11	NR	910	0	NR
395	3	NR	525	459	NR	655	538	NR	785	9	NR	915	0	NR
400	5	NR	530	476	NR	660	475	NR	790	8	NR	920	0	NR
405	7	NR	535	492	NR	665	419	NR	795	6	NR	925	0	NR
410	12	NR	540	508	NR	670	365	NR	800	5	NR	930	0	NR
415	20	NR	545	531	NR	675	318	NR	805	5	NR	935	0	NR
420	38	NR	550	554	NR	680	274	NR	810	4	NR	940	0	NR
425	68	NR	555	584	NR	685	237	NR	815	3	NR	945	0	NR
430	116	NR	560	623	NR	690	204	NR	820	3	NR	950	0	NR
435	195	NR	565	664	NR	695	174	NR	825	3	NR	955	0	NR
440	320	NR	570	711	NR	700	148	NR	830	2	NR	960	0	NR
445	416	NR	575	762	NR	705	125	NR	835	2	NR	965	0	NR
450	297	NR	580	817	NR	710	106	NR	840	2	NR	970	0	NR
455	204	NR	585	867	NR	715	88	NR	845	1	NR	975	0	NR
460	177	NR	590	920	NR	720	73	NR	850	1	NR	980	0	NR
465	133	NR	595	959	NR	725	61	NR	855	1	NR	985	0	NR
470	111	NR	600	986	NR	730	51	NR	860	1	NR	990	0	NR
475	120	NR	605	997	NR	735	43	NR	865	1	NR	995	0	NR
480	140	NR	610	994	NR	740	37	NR	870	1	NR	1000	0	NR
485	174	NR	615	972	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2509-539-5

Scotopic Flux vs. Wavelength

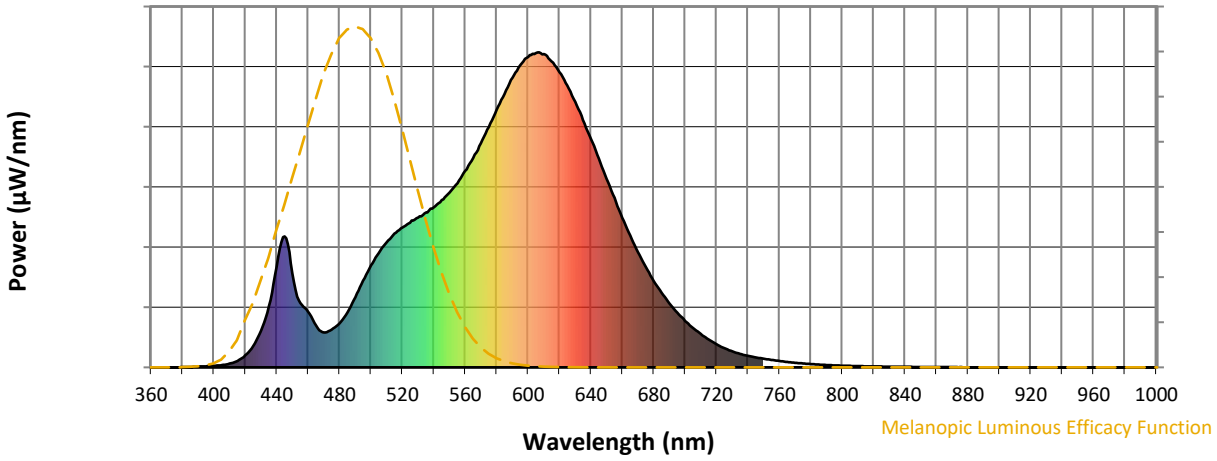


Scotopic Lumens: NR **S/P: 1.26**

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	223	NR	620	936	NR	750	28	NR	880	0	NR
365	0	NR	495	275	NR	625	895	NR	755	24	NR	885	0	NR
370	0	NR	500	324	NR	630	843	NR	760	20	NR	890	0	NR
375	0	NR	505	363	NR	635	786	NR	765	17	NR	895	0	NR
380	1	NR	510	397	NR	640	725	NR	770	15	NR	900	0	NR
385	1	NR	515	425	NR	645	663	NR	775	12	NR	905	0	NR
390	2	NR	520	444	NR	650	599	NR	780	11	NR	910	0	NR
395	3	NR	525	459	NR	655	538	NR	785	9	NR	915	0	NR
400	5	NR	530	476	NR	660	475	NR	790	8	NR	920	0	NR
405	7	NR	535	492	NR	665	419	NR	795	6	NR	925	0	NR
410	12	NR	540	508	NR	670	365	NR	800	5	NR	930	0	NR
415	20	NR	545	531	NR	675	318	NR	805	5	NR	935	0	NR
420	38	NR	550	554	NR	680	274	NR	810	4	NR	940	0	NR
425	68	NR	555	584	NR	685	237	NR	815	3	NR	945	0	NR
430	116	NR	560	623	NR	690	204	NR	820	3	NR	950	0	NR
435	195	NR	565	664	NR	695	174	NR	825	3	NR	955	0	NR
440	320	NR	570	711	NR	700	148	NR	830	2	NR	960	0	NR
445	416	NR	575	762	NR	705	125	NR	835	2	NR	965	0	NR
450	297	NR	580	817	NR	710	106	NR	840	2	NR	970	0	NR
455	204	NR	585	867	NR	715	88	NR	845	1	NR	975	0	NR
460	177	NR	590	920	NR	720	73	NR	850	1	NR	980	0	NR
465	133	NR	595	959	NR	725	61	NR	855	1	NR	985	0	NR
470	111	NR	600	986	NR	730	51	NR	860	1	NR	990	0	NR
475	120	NR	605	997	NR	735	43	NR	865	1	NR	995	0	NR
480	140	NR	610	994	NR	740	37	NR	870	1	NR	1000	0	NR
485	174	NR	615	972	NR	745	32	NR	875	1	NR			

REPORT NUMBER: SP1-2509-539-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.34**

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	223	NR	620	936	NR	750	28	NR	880	0	NR
365	0	NR	495	275	NR	625	895	NR	755	24	NR	885	0	NR
370	0	NR	500	324	NR	630	843	NR	760	20	NR	890	0	NR
375	0	NR	505	363	NR	635	786	NR	765	17	NR	895	0	NR
380	1	NR	510	397	NR	640	725	NR	770	15	NR	900	0	NR
385	1	NR	515	425	NR	645	663	NR	775	12	NR	905	0	NR
390	2	NR	520	444	NR	650	599	NR	780	11	NR	910	0	NR
395	3	NR	525	459	NR	655	538	NR	785	9	NR	915	0	NR
400	5	NR	530	476	NR	660	475	NR	790	8	NR	920	0	NR
405	7	NR	535	492	NR	665	419	NR	795	6	NR	925	0	NR
410	12	NR	540	508	NR	670	365	NR	800	5	NR	930	0	NR
415	20	NR	545	531	NR	675	318	NR	805	5	NR	935	0	NR
420	38	NR	550	554	NR	680	274	NR	810	4	NR	940	0	NR
425	68	NR	555	584	NR	685	237	NR	815	3	NR	945	0	NR
430	116	NR	560	623	NR	690	204	NR	820	3	NR	950	0	NR
435	195	NR	565	664	NR	695	174	NR	825	3	NR	955	0	NR
440	320	NR	570	711	NR	700	148	NR	830	2	NR	960	0	NR
445	416	NR	575	762	NR	705	125	NR	835	2	NR	965	0	NR
450	297	NR	580	817	NR	710	106	NR	840	2	NR	970	0	NR
455	204	NR	585	867	NR	715	88	NR	845	1	NR	975	0	NR
460	177	NR	590	920	NR	720	73	NR	850	1	NR	980	0	NR
465	133	NR	595	959	NR	725	61	NR	855	1	NR	985	0	NR
470	111	NR	600	986	NR	730	51	NR	860	1	NR	990	0	NR
475	120	NR	605	997	NR	735	43	NR	865	1	NR	995	0	NR
480	140	NR	610	994	NR	740	37	NR	870	1	NR	1000	0	NR
485	174	NR	615	972	NR	745	32	NR	875	1	NR			

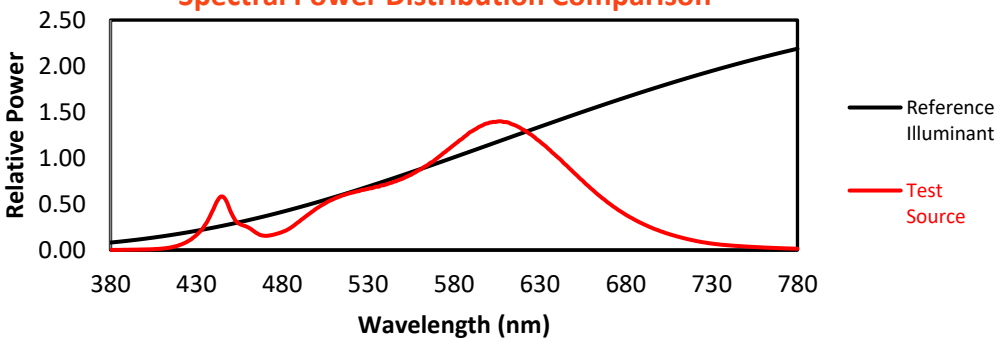
REPORT NUMBER: SP1-2509-539-5

TM-30-18

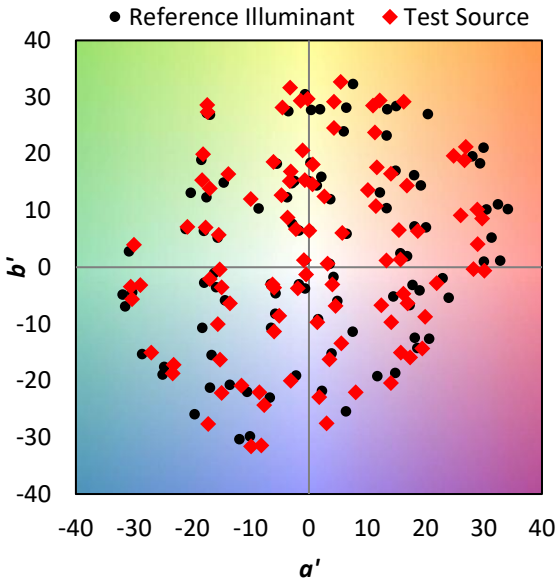
Summary

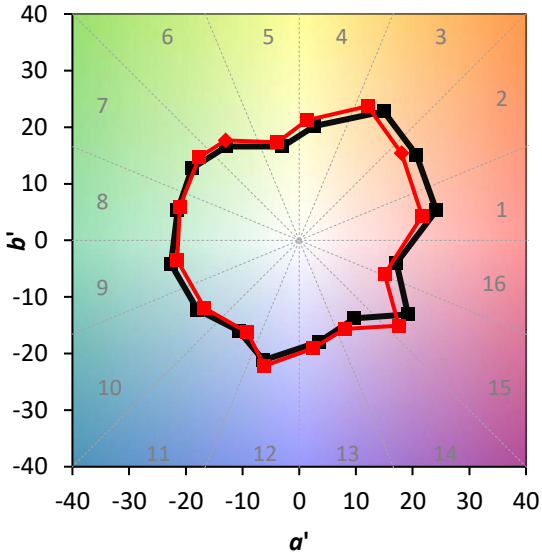
R_f = 86.1
R_g = 97.2
CIE R_a = 83.8
R_9 = 8.2

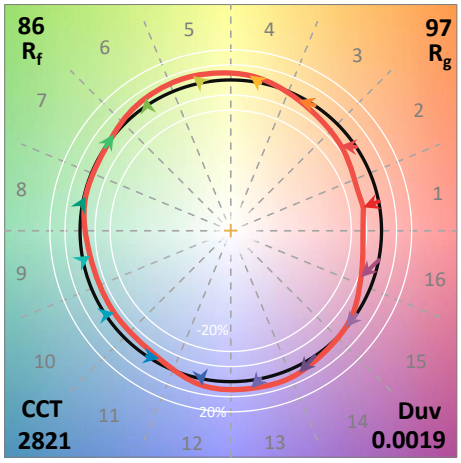
Spectral Power Distribution Comparison

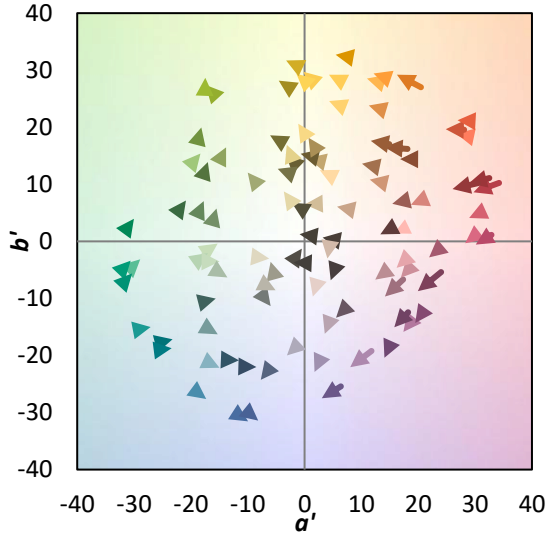


Color Vector Graphics







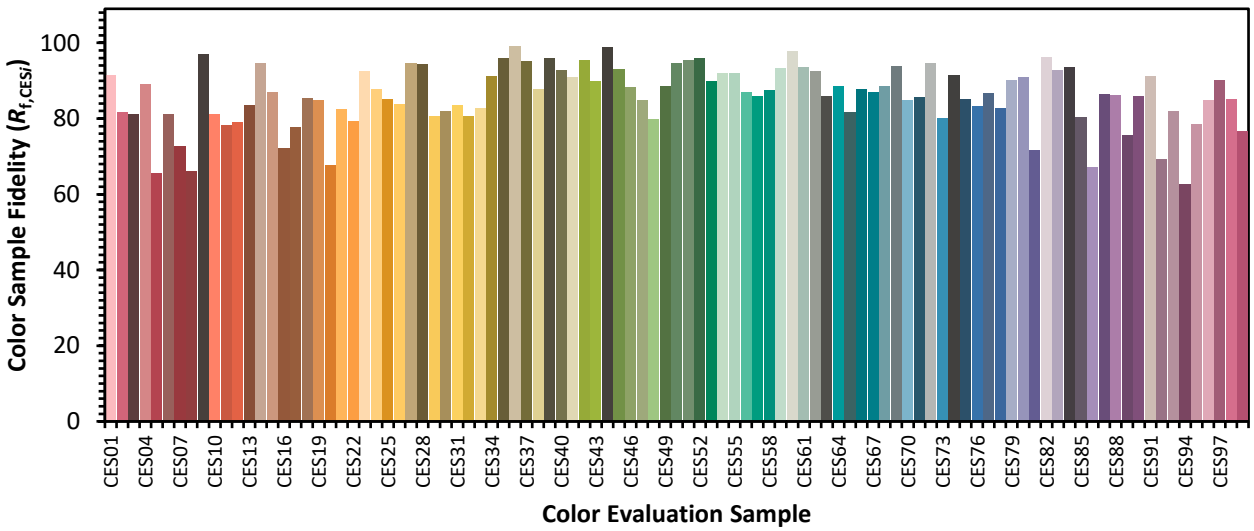


REPORT NUMBER: SP1-2509-539-5

TM-30-18

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

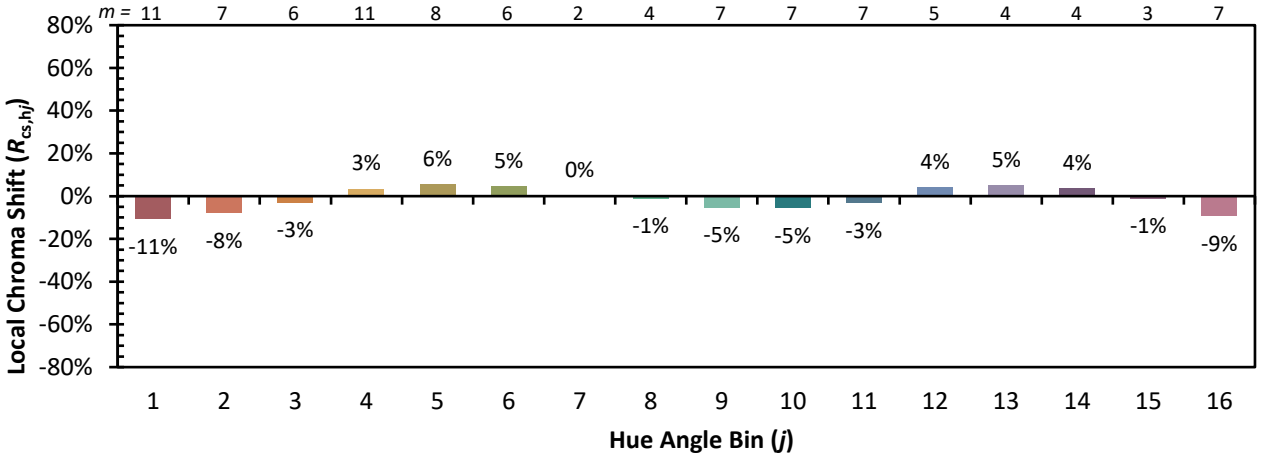
CES01 = 86	CES26 = 84	CES51 = 95	CES76 = 83
CES02 = 63	CES27 = 95	CES52 = 96	CES77 = 87
CES03 = 31	CES28 = 94	CES53 = 90	CES78 = 83
CES04 = 71	CES29 = 81	CES54 = 92	CES79 = 90
CES05 = 50	CES30 = 82	CES55 = 92	CES80 = 91
CES06 = 51	CES31 = 84	CES56 = 87	CES81 = 72
CES07 = 43	CES32 = 81	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 83	CES58 = 88	CES83 = 93
CES09 = 29	CES34 = 91	CES59 = 93	CES84 = 94
CES10 = 76	CES35 = 96	CES60 = 98	CES85 = 80
CES11 = 59	CES36 = 99	CES61 = 94	CES86 = 67
CES12 = 65	CES37 = 95	CES62 = 92	CES87 = 87
CES13 = 44	CES38 = 88	CES63 = 86	CES88 = 86
CES14 = 74	CES39 = 96	CES64 = 88	CES89 = 76
CES15 = 72	CES40 = 93	CES65 = 82	CES90 = 86
CES16 = 48	CES41 = 91	CES66 = 88	CES91 = 91
CES17 = 50	CES42 = 95	CES67 = 87	CES92 = 69
CES18 = 57	CES43 = 90	CES68 = 89	CES93 = 82
CES19 = 72	CES44 = 99	CES69 = 94	CES94 = 63
CES20 = 67	CES45 = 93	CES70 = 85	CES95 = 79
CES21 = 87	CES46 = 88	CES71 = 86	CES96 = 85
CES22 = 79	CES47 = 85	CES72 = 95	CES97 = 90
CES23 = 92	CES48 = 80	CES73 = 80	CES98 = 85
CES24 = 91	CES49 = 89	CES74 = 91	CES99 = 77
CES25 = 72	CES50 = 95	CES75 = 85	

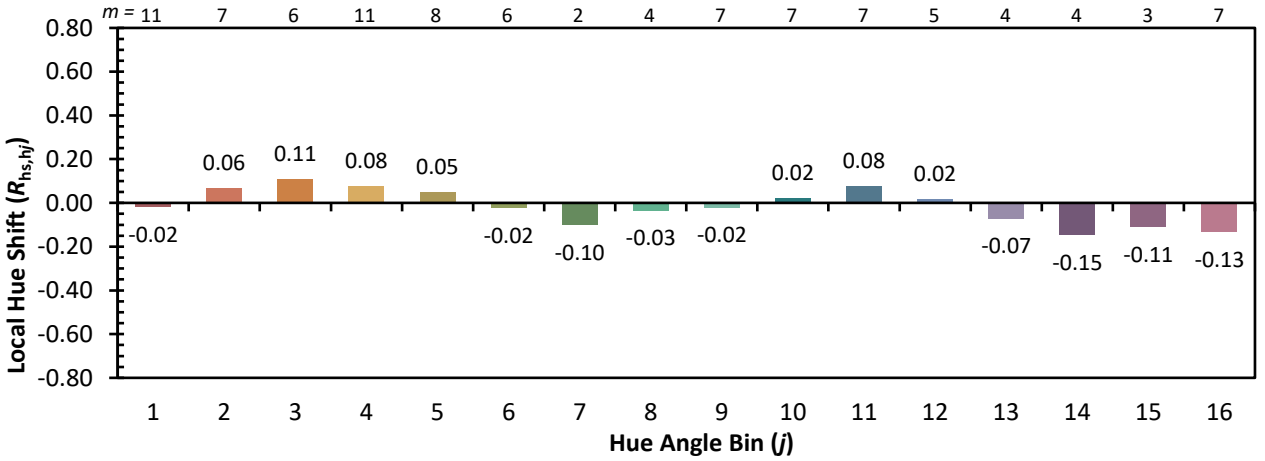


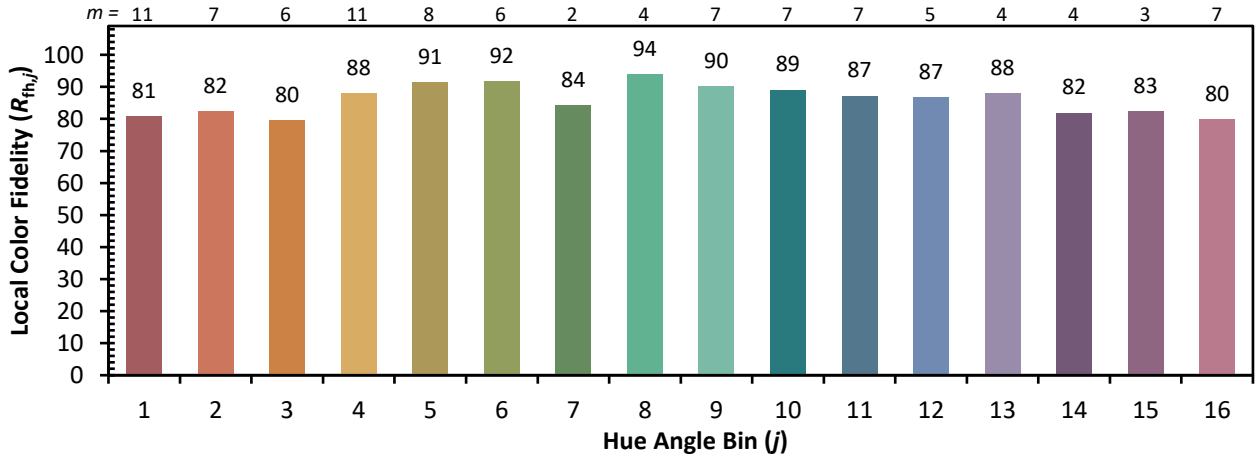
REPORT NUMBER: SP1-2509-539-5

TM-30-18

Color Rendition by Hue-Angle Bin



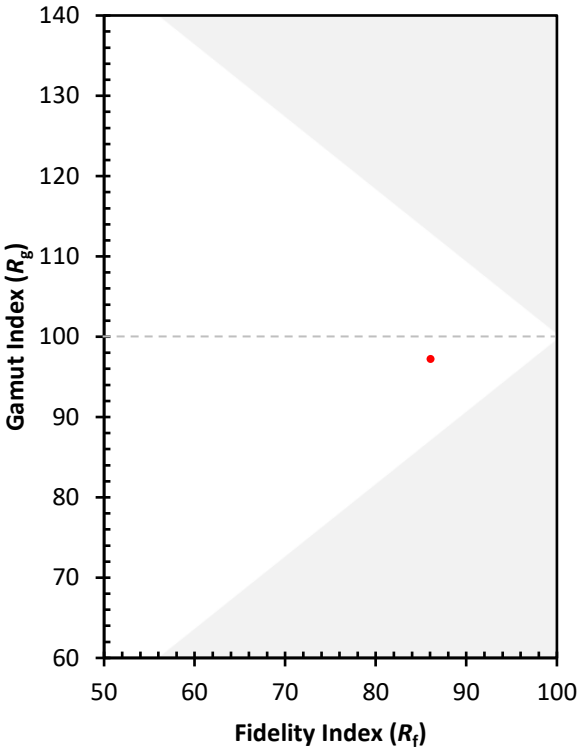


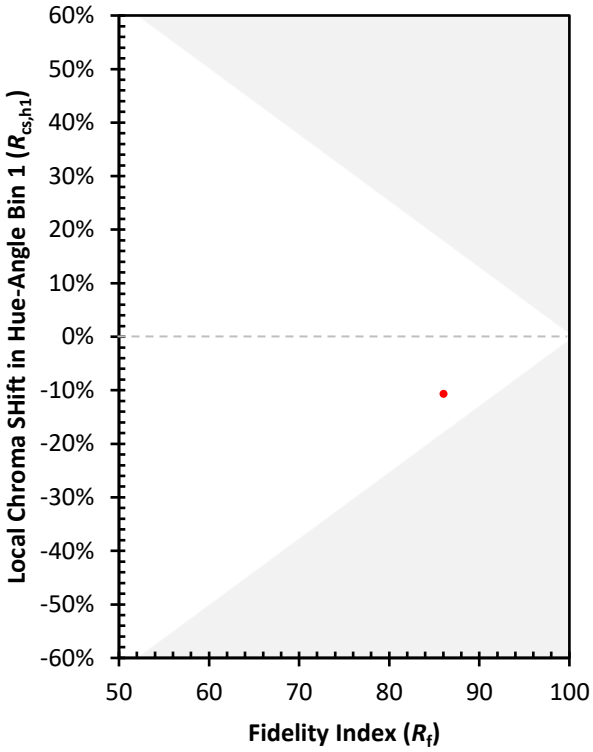


REPORT NUMBER: SP1-2509-539-5

TM-30-18

Measure Comparisons





(END OF REPORT)