

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: METALUX

Report Number: P1433772

Luminaire Tested: EHBR1-24-UNV-TASM-L940-UPL15

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433772
REPORT IS A COMBINATION OF REPORTS P1431709 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-24-UNV-TASM-L940-UPL15
Description: Elevate Round Highbay at, 24000 lumens, 4000K 90CRI LEDs with TASM lens
Light Source: -
Ballast/Driver: -

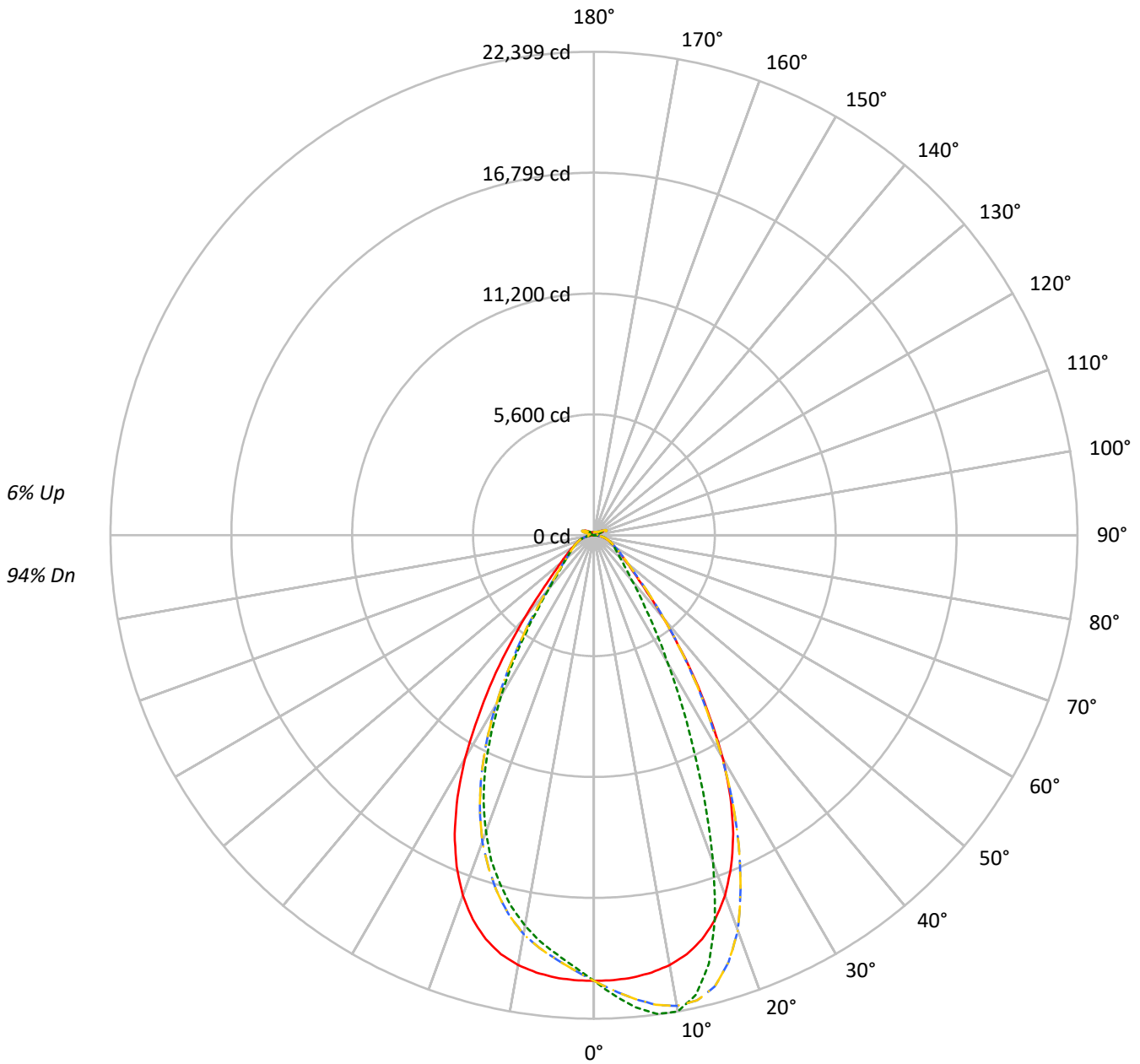
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 24467.8 lumens
Efficiency: N/A
Efficacy: 177.8 lumens/watt
Spacing Criteria (0/90/45): 0.99 / 0.84 / 0.9
Luminous Opening: Vertical Cylinder (Dia: 1.71' x H: 0.1')
CIE Type: Direct

Input Watts (W): 137.6
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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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° ··· 90°-270° - · 135°-315°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	97	97	97	94
1	110	107	104	101	107	104	101	99	99	97	95	94	93	91	90	89	87	87	87	87	85
2	104	98	93	88	101	95	91	87	91	87	84	87	84	81	83	81	79	79	79	79	77
3	97	89	83	79	94	87	82	78	84	79	76	81	77	74	78	74	72	72	72	72	70
4	91	82	76	71	89	81	75	70	78	72	68	75	71	67	72	69	66	66	66	66	64
5	86	76	69	64	84	75	68	64	72	67	62	70	65	61	68	64	60	60	60	60	58
6	81	71	64	59	79	69	63	58	67	62	57	65	60	57	63	59	56	56	56	56	54
7	76	66	59	54	75	65	58	54	63	57	53	61	56	52	59	55	52	52	52	52	50
8	72	61	55	50	71	61	54	50	59	53	49	57	52	49	56	51	48	48	48	48	46
9	68	58	51	47	67	57	51	46	55	50	46	54	49	45	53	48	45	45	45	45	43
10	65	54	48	43	64	54	47	43	52	47	43	51	46	42	50	45	42	42	42	42	41

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	96940	96940	96940	96940
5°	96349	102787	96349	91350
10°	95165	105426	95165	86454
15°	92355	97973	92355	79860
20°	86375	78561	86375	71133
25°	76449	54432	76449	59613
30°	62074	35412	62074	44602
35°	44522	22933	44522	29693
40°	28785	15807	28785	18726
45°	18264	12244	18264	13342
50°	13563	10404	13563	11114
55°	11073	9478	11073	9810
60°	9589	9029	9589	9084
65°	8741	8707	8741	8670
70°	8285	8532	8285	8421
75°	7748	8252	7748	8006
80°	6805	7792	6805	7284
85°	4405	5563	4405	5304

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 25677 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1962.8	8.0
10°-20°	5339.9	21.8
20°-30°	6262.6	25.6
30°-40°	4355.3	17.8
40°-50°	2164.4	8.8
50°-60°	1294.5	5.3
60°-70°	911.1	3.7
70°-80°	586.9	2.4
80°-90°	188.9	0.8
90°-100°	37.6	0.2
100°-110°	242.9	1.0
110°-120°	448.4	1.8
120°-130°	266.8	1.1
130°-140°	161.9	0.7
140°-150°	112.5	0.5
150°-160°	73.9	0.3
160°-170°	43.0	0.2
170°-180°	14.4	0.1
0°-30°	13565.3	55.4
0°-40°	17920.5	73.2
0°-60°	21379.4	87.4
0°-90°	23066.3	94.3
90°-120°	728.8	3.0
90°-150°	1270.1	5.2
90°-180°	1401.0	5.7
0°-180°	24467.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	20643	20643	20643	20643	20643	
5°	20572	21947	20572	19505	20572	1952
15°	19376	20554	19376	16754	19376	5415
25°	15267	10870	15267	11905	15267	6912
35°	8171	4209	8171	5450	8171	5101
45°	2955	1981	2955	2159	2955	2418
55°	1496	1281	1496	1326	1496	1368
65°	912	909	912	905	912	916
75°	546	581	546	564	546	573
85°	151	191	151	182	151	168
90°	10	13	10	10	10	12
95°	20	20	20	17	20	21
105°	112	58	112	85	112	150
115°	477	408	477	387	477	435
125°	306	321	306	280	306	282
135°	194	224	194	205	194	154
145°	176	184	176	171	176	111
155°	158	165	158	154	158	74
165°	151	156	151	148	151	43
175°	151	155	151	149	151	14
180°	151	151	151	151	151	



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 CATALOG NUMBER: EHBR1-24-UNV-TASM-L940-UPL15

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6
2.5°	20630.6	20897.3	21113.2	21255.7	21326.1	21255.7	21113.2	20897.3	20630.6	20365.4	20183.1
5°	20572.1	21106.3	21558.8	21854.9	21946.6	21854.9	21558.8	21106.3	20572.1	20067.4	19732.5
7.5°	20432.4	21264.6	21936.9	22282.6	22367.0	22282.6	21936.9	21264.6	20432.4	19717.8	19294.8
10°	20219.1	21364.5	22141.3	22389.0	22399.1	22389.0	22141.3	21364.5	20219.1	19256.5	18757.5
12.5°	19878.8	21328.8	22072.8	21991.5	21806.9	21991.5	22072.8	21328.8	19878.8	18692.8	18063.5
15°	19375.6	21117.9	21638.9	20977.4	20554.3	20977.4	21638.9	21117.9	19375.6	17931.9	17201.8
17.5°	18666.6	20723.1	20733.1	19424.4	18626.3	19424.4	20733.1	20723.1	18666.6	17001.3	16197.3
20°	17752.6	20089.8	19485.9	17092.3	16146.6	17092.3	19485.9	20089.8	17752.6	15901.2	15112.3
22.5°	16606.9	19235.9	17749.2	14746.2	13456.0	14746.2	17749.2	19235.9	16606.9	14621.9	13800.9
25°	15266.8	18189.6	15880.7	12189.9	10870.0	12189.9	15880.7	18189.6	15266.8	13097.6	12355.2
27.5°	13690.6	16863.5	13891.1	9961.1	8743.3	9961.1	13891.1	16863.5	13690.6	11523.7	10765.4
30°	11939.9	15163.5	11820.6	7932.8	6811.5	7932.8	11820.6	15163.5	11939.9	9755.5	9076.7
32.5°	9979.7	13497.0	9832.2	6356.2	5406.3	6356.2	9832.2	13497.0	9979.7	8068.2	7358.8
35°	8171.3	11412.3	8039.3	4994.5	4209.1	4994.5	8039.3	11412.3	8171.3	6475.5	5778.7
37.5°	6412.7	9442.4	6408.5	4021.7	3414.0	4021.7	6408.5	9442.4	6412.7	5034.3	4468.8
40°	4989.1	7383.1	5021.2	3210.5	2739.8	3210.5	5021.2	7383.1	4989.1	3830.6	3468.6
42.5°	3780.2	5645.6	3946.6	2634.9	2327.2	2634.9	3946.6	5645.6	3780.2	3018.1	2747.1
45°	2955.0	4154.5	3081.9	2223.0	1981.1	2223.0	3081.9	4154.5	2955.0	2430.5	2248.5
47.5°	2406.4	3210.8	2497.8	1906.8	1737.2	1906.8	2497.8	3210.8	2406.4	2055.8	1919.6
50°	2021.3	2463.7	2073.9	1664.5	1550.6	1664.5	2073.9	2463.7	2021.3	1760.4	1669.5
52.5°	1736.4	2009.4	1766.2	1483.3	1406.7	1483.3	1766.2	2009.4	1736.4	1540.2	1483.6
55°	1496.4	1689.3	1535.9	1333.8	1280.8	1333.8	1535.9	1689.3	1496.4	1370.6	1328.8
57.5°	1314.2	1433.0	1333.8	1206.5	1171.3	1206.5	1333.8	1433.0	1314.2	1219.7	1197.3
60°	1152.7	1241.0	1177.1	1095.4	1085.4	1095.4	1177.1	1241.0	1152.7	1097.4	1082.7
62.5°	1028.4	1084.2	1040.8	995.6	986.7	995.6	1040.8	1084.2	1028.4	985.9	988.6
65°	912.4	964.3	930.2	905.7	908.8	905.7	930.2	964.3	912.4	892.6	896.9
67.5°	822.6	849.7	834.9	821.0	824.5	821.0	834.9	849.7	822.6	803.2	809.8
70°	727.0	755.9	740.8	742.8	748.6	742.8	740.8	755.9	727.0	721.1	726.1
72.5°	635.6	658.0	653.0	657.6	663.8	657.6	653.0	658.0	635.6	634.8	635.2
75°	545.8	562.8	565.1	571.8	581.3	571.8	565.1	562.8	545.8	540.0	547.0
77.5°	447.8	467.2	474.6	483.4	497.8	483.4	474.6	467.2	447.8	451.8	455.2
80°	358.0	367.0	383.2	389.8	409.9	389.8	383.2	367.0	358.0	351.5	356.5
82.5°	262.1	270.2	284.2	296.5	308.1	296.5	284.2	270.2	262.1	259.0	259.4
85°	151.4	163.7	173.0	187.7	191.2	187.7	173.0	163.7	151.4	154.8	151.4
87.5°	53.0	56.9	65.0	70.8	71.2	70.8	65.0	56.9	53.0	54.2	49.2
90°	10.3	17.7	30.4	17.7	13.0	17.7	30.4	17.7	10.3	18.1	28.1
92.5°	13.5	23.9	42.7	23.1	17.0	23.1	42.7	23.9	13.5	23.5	45.0
95°	20.0	29.3	54.2	25.4	20.0	25.4	54.2	29.3	20.0	31.2	62.8
97.5°	30.7	36.1	61.2	27.0	23.9	27.0	61.2	36.1	30.7	38.1	72.0
100°	40.8	40.8	111.2	30.8	26.9	30.8	111.2	40.8	40.8	47.0	112.1
102.5°	61.6	79.7	257.2	60.5	32.3	60.5	257.2	79.7	61.6	87.8	237.6
105°	111.6	181.3	452.1	153.6	58.1	153.6	452.1	181.3	111.6	183.3	423.2
107.5°	211.0	337.6	582.3	301.5	132.9	301.5	582.3	337.6	211.0	324.2	558.3
110°	337.3	471.7	635.4	412.4	266.8	412.4	635.4	471.7	337.3	445.0	585.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	438.9	525.5	620.8	457.1	368.5	457.1	620.8	525.5	438.9	491.3	560.6
115°	477.0	517.9	554.5	455.5	408.5	455.5	554.5	517.9	477.0	479.7	500.6
117.5°	460.9	473.9	479.1	427.8	410.9	427.8	479.1	473.9	460.9	431.6	425.1
120°	416.2	410.9	404.0	387.0	387.8	387.0	404.0	410.9	416.2	376.9	355.0
122.5°	360.5	348.9	341.5	345.7	356.2	345.7	341.5	348.9	360.5	321.1	304.6
125°	305.8	294.2	298.0	310.3	321.2	310.3	298.0	294.2	305.8	273.1	268.8
127.5°	259.9	254.5	266.5	280.3	289.6	280.3	266.5	254.5	259.9	239.2	243.4
130°	227.2	228.3	244.2	256.0	261.9	256.0	244.2	228.3	227.2	217.2	227.6
132.5°	206.7	212.6	227.6	238.0	241.5	238.0	227.6	212.6	206.7	204.0	216.8
135°	194.1	202.5	216.4	222.9	224.5	222.9	216.4	202.5	194.1	195.2	206.7
137.5°	186.7	195.3	205.6	211.1	209.9	211.1	205.6	195.3	186.7	189.5	198.3
140°	182.6	191.0	195.6	201.8	201.0	201.8	195.6	191.0	182.6	184.1	191.1
142.5°	178.3	186.0	188.3	192.9	191.8	192.9	188.3	186.0	178.3	179.9	184.5
145°	176.4	182.1	180.3	186.0	184.5	186.0	180.3	182.1	176.4	176.8	179.4
147.5°	172.5	176.8	174.5	179.4	177.9	179.4	174.5	176.8	172.5	172.5	173.7
150°	168.3	171.3	167.9	173.7	173.7	173.7	167.9	171.3	168.3	167.5	168.6
152.5°	162.5	165.6	162.5	169.0	168.6	169.0	162.5	165.6	162.5	161.7	162.9
155°	157.8	159.4	157.8	164.5	164.9	164.5	157.8	159.4	157.8	157.4	158.3
157.5°	154.8	156.0	155.2	161.0	161.4	161.0	155.2	156.0	154.8	154.8	155.2
160°	152.5	154.0	153.7	158.8	159.1	158.8	153.7	154.0	152.5	152.9	153.3
162.5°	151.8	151.8	151.8	156.8	157.5	156.8	151.8	151.8	151.8	151.8	152.5
165°	150.6	151.4	150.6	154.5	156.0	154.5	150.6	151.4	150.6	151.0	151.0
167.5°	150.6	149.8	150.6	154.1	155.7	154.1	150.6	149.8	150.6	150.9	150.9
170°	149.5	149.9	149.8	153.3	154.8	153.3	149.8	149.9	149.5	150.3	150.6
172.5°	150.6	150.6	150.3	153.0	155.2	153.0	150.3	150.6	150.6	151.0	151.8
175°	151.4	151.0	151.0	152.9	155.3	152.9	151.0	151.0	151.4	151.0	151.0
177.5°	150.6	151.4	152.1	154.2	157.2	154.2	152.1	151.4	150.6	151.0	151.0
180°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	20642.6	20642.6	20642.6	20642.6	20642.6	20642.6
2.5°	20043.0	20029.8	20043.0	20183.1	20365.4	20630.6
5°	19577.3	19504.6	19577.3	19732.5	20067.4	20572.1
7.5°	19035.0	18992.8	19035.0	19294.8	19717.8	20432.4
10°	18464.1	18368.4	18464.1	18757.5	19256.5	20219.1
12.5°	17760.3	17633.8	17760.3	18063.5	18692.8	19878.8
15°	16865.4	16754.3	16865.4	17201.8	17931.9	19375.6
17.5°	15905.1	15804.4	15905.1	16197.3	17001.3	18666.6
20°	14699.0	14619.9	14699.0	15112.3	15901.2	17752.6
22.5°	13433.6	13359.6	13433.6	13800.9	14621.9	16606.9
25°	11944.9	11904.7	11944.9	12355.2	13097.6	15266.8
27.5°	10336.1	10267.7	10336.1	10765.4	11523.7	13690.6
30°	8692.6	8579.2	8692.6	9076.7	9755.5	11939.9
32.5°	7085.1	7003.5	7085.1	7358.8	8068.2	9979.7
35°	5531.4	5449.7	5531.4	5778.7	6475.5	8171.3
37.5°	4310.2	4165.8	4310.2	4468.8	5034.3	6412.7
40°	3268.9	3245.7	3268.9	3468.6	3830.6	4989.1
42.5°	2661.2	2598.1	2661.2	2747.1	3018.1	3780.2
45°	2183.5	2158.7	2183.5	2248.5	2430.5	2955.0
47.5°	1877.7	1888.5	1877.7	1919.6	2055.8	2406.4
50°	1649.8	1656.3	1649.8	1669.5	1760.4	2021.3
52.5°	1481.8	1475.9	1481.8	1483.6	1540.2	1736.4
55°	1333.1	1325.7	1333.1	1328.8	1370.6	1496.4
57.5°	1203.0	1208.4	1203.0	1197.3	1219.7	1314.2
60°	1087.0	1092.0	1087.0	1082.7	1097.4	1152.7
62.5°	988.9	992.1	988.9	988.6	985.9	1028.4
65°	901.6	905.0	901.6	896.9	892.6	912.4
67.5°	817.9	817.9	817.9	809.8	803.2	822.6
70°	739.4	738.9	739.4	726.1	721.1	727.0
72.5°	644.9	654.2	644.9	635.2	634.8	635.6
75°	553.1	564.0	553.1	547.0	540.0	545.8
77.5°	460.2	476.9	460.2	455.2	451.8	447.8
80°	365.0	383.2	365.0	356.5	351.5	358.0
82.5°	269.8	283.3	269.8	259.4	259.0	262.1
85°	160.6	182.3	160.6	151.4	154.8	151.4
87.5°	51.5	65.8	51.5	49.2	54.2	53.0
90°	16.6	10.3	16.6	28.1	18.1	10.3
92.5°	25.1	15.0	25.1	45.0	23.5	13.5
95°	28.9	17.3	28.9	62.8	31.2	20.0
97.5°	32.0	22.3	32.0	72.0	38.1	30.7
100°	37.4	29.3	37.4	112.1	47.0	40.8
102.5°	78.9	49.3	78.9	237.6	87.8	61.6
105°	165.9	84.7	165.9	423.2	183.3	111.6
107.5°	296.8	146.3	296.8	558.3	324.2	211.0
110°	393.9	272.6	393.9	585.3	445.0	337.3



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CATALOG NUMBER: EHBR1-24-UNV-TASM-L940-UPL15

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	423.2	368.1	423.2	560.6	491.3	438.9
115°	406.9	387.4	406.9	500.6	479.7	477.0
117.5°	371.5	374.2	371.5	425.1	431.6	460.9
120°	330.7	346.5	330.7	355.0	376.9	416.2
122.5°	293.4	311.8	293.4	304.6	321.1	360.5
125°	261.0	279.9	261.0	268.8	273.1	305.8
127.5°	238.7	251.4	238.7	243.4	239.2	259.9
130°	221.4	232.2	221.4	227.6	217.2	227.2
132.5°	209.5	216.4	209.5	216.8	204.0	206.7
135°	199.1	204.9	199.1	206.7	195.2	194.1
137.5°	190.2	195.3	190.2	198.3	189.5	186.7
140°	182.5	186.8	182.5	191.1	184.1	182.6
142.5°	174.4	177.5	174.4	184.5	179.9	178.3
145°	169.1	171.4	169.1	179.4	176.8	176.4
147.5°	164.4	166.0	164.4	173.7	172.5	172.5
150°	159.8	161.4	159.8	168.6	167.5	168.3
152.5°	154.7	156.8	154.7	162.9	161.7	162.5
155°	151.8	153.7	151.8	158.3	157.4	157.8
157.5°	150.2	151.7	150.2	155.2	154.8	154.8
160°	149.1	150.3	149.1	153.3	152.9	152.5
162.5°	147.6	148.7	147.6	152.5	151.8	151.8
165°	147.5	147.9	147.5	151.0	151.0	150.6
167.5°	147.1	147.9	147.1	150.9	150.9	150.6
170°	147.5	147.9	147.5	150.6	150.3	149.5
172.5°	148.3	148.7	148.3	151.8	151.0	150.6
175°	148.3	148.7	148.3	151.0	151.0	151.4
177.5°	149.4	149.8	149.4	151.0	151.0	150.6
180°	151.4	151.4	151.4	151.4	151.4	151.4



TEST NUMBER: P1433772
 CATALOG NUMBER: EHBR1-24-UNV-TASM-L940-UPL15

CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	16.61	17.73	17.07	18.16	18.62	15.93	17.04	16.39	17.48	17.94
	3H	18.15	19.15	18.64	19.60	20.11	17.77	18.77	18.26	19.22	19.73
	4H	18.79	19.72	19.30	20.19	20.71	18.55	19.48	19.06	19.95	20.48
	6H	19.27	20.13	19.79	20.61	21.15	19.20	20.05	19.71	20.54	21.07
	8H	19.42	20.23	19.96	20.74	21.28	19.42	20.23	19.95	20.73	21.28
	12H	19.50	20.27	20.03	20.76	21.33	19.55	20.32	20.08	20.81	21.38
4H	2H	17.02	17.95	17.53	18.42	18.94	16.50	17.43	17.01	17.90	18.42
	3H	18.82	19.59	19.34	20.10	20.65	18.56	19.33	19.07	19.84	20.38
	4H	19.59	20.28	20.13	20.81	21.39	19.47	20.16	20.00	20.68	21.26
	6H	20.21	20.80	20.77	21.36	21.96	20.24	20.83	20.80	21.38	21.98
	8H	20.41	20.96	20.97	21.51	22.12	20.51	21.06	21.07	21.61	22.22
	12H	20.51	21.00	21.10	21.58	22.19	20.68	21.17	21.26	21.75	22.36
8H	4H	19.84	20.40	20.41	20.95	21.55	19.75	20.30	20.31	20.85	21.46
	6H	20.59	21.04	21.18	21.64	22.25	20.65	21.10	21.25	21.70	22.31
	8H	20.86	21.26	21.47	21.87	22.49	21.00	21.41	21.62	22.02	22.64
	12H	21.03	21.38	21.64	21.97	22.67	21.25	21.60	21.86	22.20	22.90
12H	4H	19.85	20.34	20.44	20.93	21.53	19.76	20.25	20.34	20.83	21.44
	6H	20.63	21.03	21.25	21.64	22.27	20.70	21.10	21.31	21.71	22.33
	8H	20.95	21.30	21.56	21.89	22.59	21.10	21.45	21.71	22.05	22.74

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

Metalux

Report Number: SP1-2506-472-6

Test Date: 08/01/2025

Luminaire Tested: EHBR-60-L935-N

Data in this report applies to families of products including EHBR-60-L935-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-6
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/05/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Metalux
 Catalog Number: **EHBR-60-L935-N**
 Description: Elevate Round Highbay at, 60000 lumens, 3500K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 3406
 CIE u': 0.2394
 CIE v': 0.5094
 Duv: -0.0028
 CIE x: 0.4076
 CIE y: 0.3856
 CIE z: 0.2068
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 582
 Purity: 38.0517
 Rf: 91.3
 Rg: 100

CRI (Ra):	94.6		
R1:	96.6	R9:	63.8
R2:	98.4	R10:	94.7
R3:	98.1	R11:	96.6
R4:	95.8	R12:	80.9
R5:	96.2	R13:	97.4
R6:	95.4	R14:	98.3
R7:	91.8	R15:	93.1
R8:	84.4		



Test Conditions

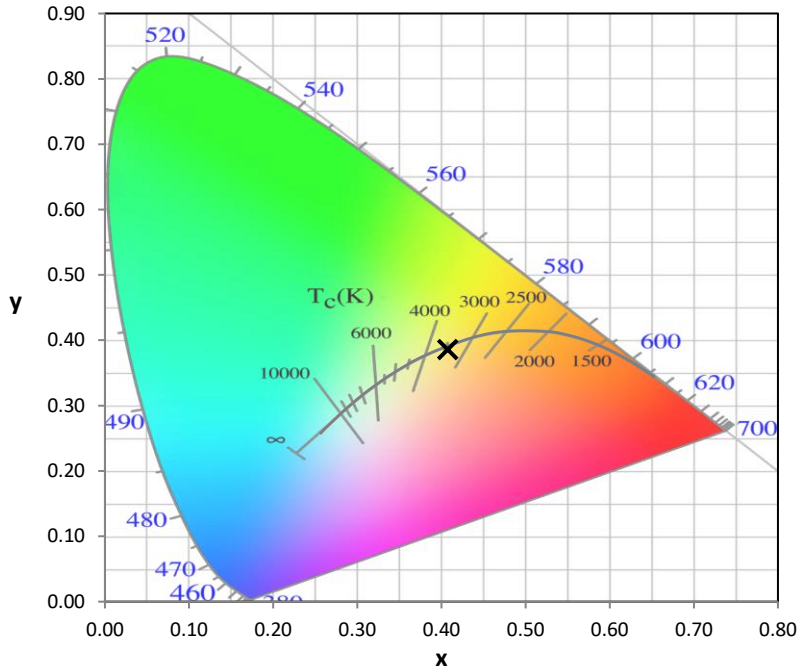
Stabilization Time: 35M
 Operation Time: 1H 35M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-6

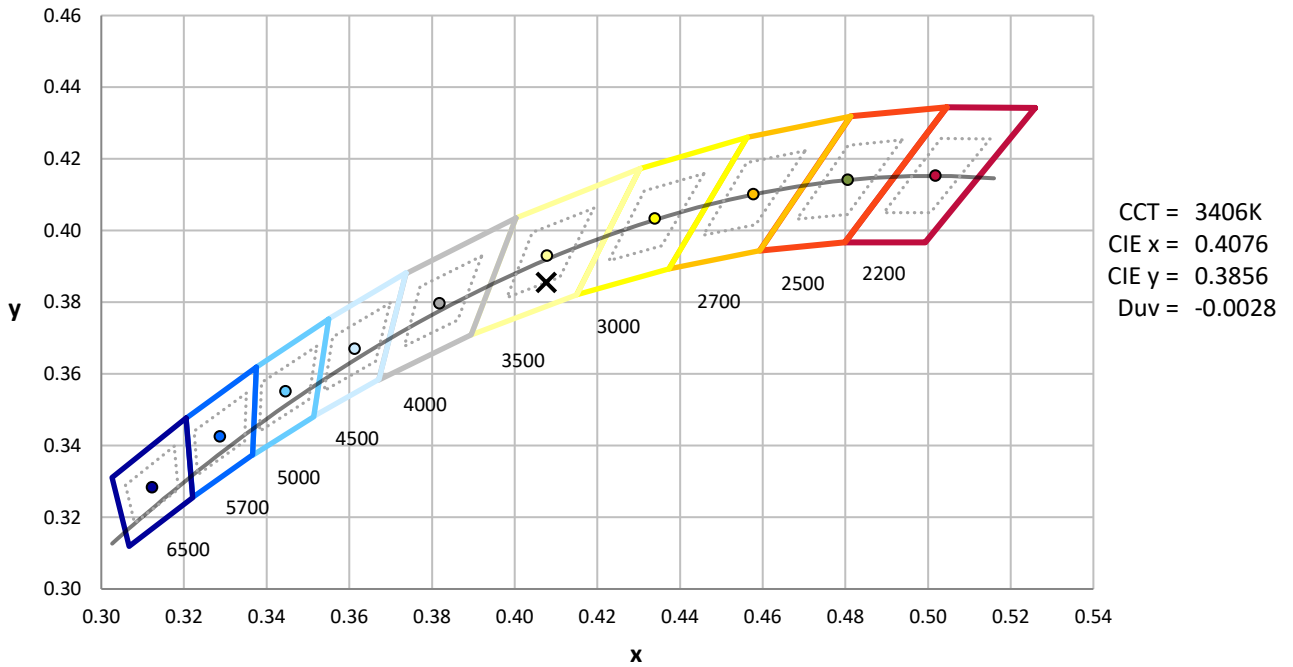
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	6/16/2025	12/16/2025
Power Meter	XITRON INXT2011004	1/21/2025	1/21/2026
AC Power Source	CHROMA 61603 IN0063	10/22/2024	10/22/2025
DC Power Source	AGILENT E3634A IN0208	10/22/2024	10/22/2025
Sphere Thermometer	ONSET IN0085	10/22/2024	10/22/2025
Room Thermometer	ONSET IN0046	10/22/2024	10/22/2025

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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: SP1-2506-472-6

Photopic Flux vs. Wavelength

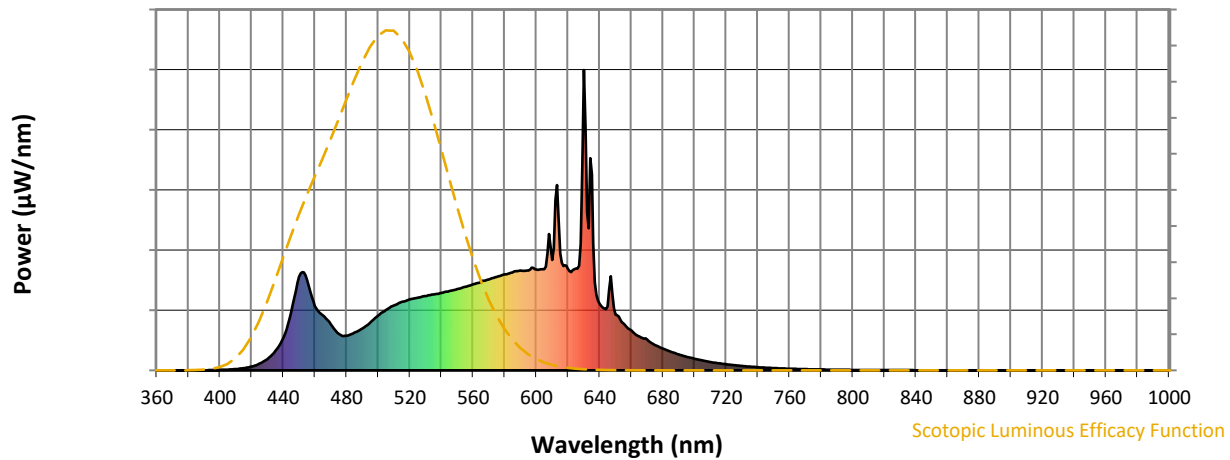


Photopic Lumens: NR

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	140	NR	620	338	NR	750	8	NR	880	0	NR
365	0	NR	495	159	NR	625	339	NR	755	7	NR	885	0	NR
370	0	NR	500	182	NR	630	1000	NR	760	5	NR	890	0	NR
375	0	NR	505	202	NR	635	653	NR	765	5	NR	895	0	NR
380	0	NR	510	216	NR	640	222	NR	770	4	NR	900	0	NR
385	0	NR	515	228	NR	645	214	NR	775	3	NR	905	0	NR
390	0	NR	520	236	NR	650	185	NR	780	3	NR	910	0	NR
395	1	NR	525	242	NR	655	157	NR	785	3	NR	915	0	NR
400	2	NR	530	248	NR	660	133	NR	790	2	NR	920	0	NR
405	3	NR	535	253	NR	665	113	NR	795	2	NR	925	0	NR
410	4	NR	540	258	NR	670	103	NR	800	2	NR	930	0	NR
415	7	NR	545	264	NR	675	85	NR	805	1	NR	935	0	NR
420	13	NR	550	270	NR	680	72	NR	810	1	NR	940	0	NR
425	22	NR	555	278	NR	685	62	NR	815	1	NR	945	0	NR
430	38	NR	560	286	NR	690	53	NR	820	1	NR	950	0	NR
435	65	NR	565	295	NR	695	45	NR	825	1	NR	955	0	NR
440	108	NR	570	303	NR	700	39	NR	830	1	NR	960	0	NR
445	193	NR	575	311	NR	705	33	NR	835	1	NR	965	0	NR
450	312	NR	580	319	NR	710	28	NR	840	1	NR	970	0	NR
455	300	NR	585	326	NR	715	24	NR	845	0	NR	975	0	NR
460	214	NR	590	332	NR	720	20	NR	850	0	NR	980	0	NR
465	184	NR	595	333	NR	725	17	NR	855	0	NR	985	0	NR
470	153	NR	600	336	NR	730	15	NR	860	0	NR	990	0	NR
475	122	NR	605	337	NR	735	12	NR	865	0	NR	995	0	NR
480	115	NR	610	367	NR	740	10	NR	870	0	NR	1000	0	NR
485	125	NR	615	390	NR	745	9	NR	875	0	NR			

REPORT NUMBER: SP1-2506-472-6

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.62

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	140	NR	620	338	NR	750	8	NR	880	0	NR
365	0	NR	495	159	NR	625	339	NR	755	7	NR	885	0	NR
370	0	NR	500	182	NR	630	1000	NR	760	5	NR	890	0	NR
375	0	NR	505	202	NR	635	653	NR	765	5	NR	895	0	NR
380	0	NR	510	216	NR	640	222	NR	770	4	NR	900	0	NR
385	0	NR	515	228	NR	645	214	NR	775	3	NR	905	0	NR
390	0	NR	520	236	NR	650	185	NR	780	3	NR	910	0	NR
395	1	NR	525	242	NR	655	157	NR	785	3	NR	915	0	NR
400	2	NR	530	248	NR	660	133	NR	790	2	NR	920	0	NR
405	3	NR	535	253	NR	665	113	NR	795	2	NR	925	0	NR
410	4	NR	540	258	NR	670	103	NR	800	2	NR	930	0	NR
415	7	NR	545	264	NR	675	85	NR	805	1	NR	935	0	NR
420	13	NR	550	270	NR	680	72	NR	810	1	NR	940	0	NR
425	22	NR	555	278	NR	685	62	NR	815	1	NR	945	0	NR
430	38	NR	560	286	NR	690	53	NR	820	1	NR	950	0	NR
435	65	NR	565	295	NR	695	45	NR	825	1	NR	955	0	NR
440	108	NR	570	303	NR	700	39	NR	830	1	NR	960	0	NR
445	193	NR	575	311	NR	705	33	NR	835	1	NR	965	0	NR
450	312	NR	580	319	NR	710	28	NR	840	1	NR	970	0	NR
455	300	NR	585	326	NR	715	24	NR	845	0	NR	975	0	NR
460	214	NR	590	332	NR	720	20	NR	850	0	NR	980	0	NR
465	184	NR	595	333	NR	725	17	NR	855	0	NR	985	0	NR
470	153	NR	600	336	NR	730	15	NR	860	0	NR	990	0	NR
475	122	NR	605	337	NR	735	12	NR	865	0	NR	995	0	NR
480	115	NR	610	367	NR	740	10	NR	870	0	NR	1000	0	NR
485	125	NR	615	390	NR	745	9	NR	875	0	NR			

REPORT NUMBER: SP1-2506-472-6

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.3

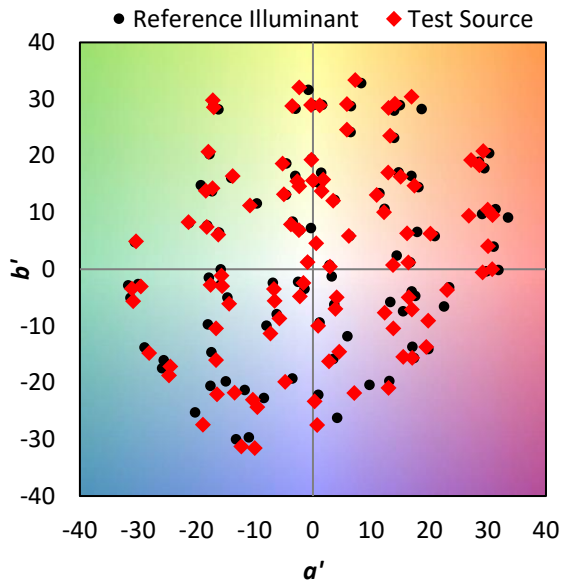
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	140	NR	620	338	NR	750	8	NR	880	0	NR
365	0	NR	495	159	NR	625	339	NR	755	7	NR	885	0	NR
370	0	NR	500	182	NR	630	1000	NR	760	5	NR	890	0	NR
375	0	NR	505	202	NR	635	653	NR	765	5	NR	895	0	NR
380	0	NR	510	216	NR	640	222	NR	770	4	NR	900	0	NR
385	0	NR	515	228	NR	645	214	NR	775	3	NR	905	0	NR
390	0	NR	520	236	NR	650	185	NR	780	3	NR	910	0	NR
395	1	NR	525	242	NR	655	157	NR	785	3	NR	915	0	NR
400	2	NR	530	248	NR	660	133	NR	790	2	NR	920	0	NR
405	3	NR	535	253	NR	665	113	NR	795	2	NR	925	0	NR
410	4	NR	540	258	NR	670	103	NR	800	2	NR	930	0	NR
415	7	NR	545	264	NR	675	85	NR	805	1	NR	935	0	NR
420	13	NR	550	270	NR	680	72	NR	810	1	NR	940	0	NR
425	22	NR	555	278	NR	685	62	NR	815	1	NR	945	0	NR
430	38	NR	560	286	NR	690	53	NR	820	1	NR	950	0	NR
435	65	NR	565	295	NR	695	45	NR	825	1	NR	955	0	NR
440	108	NR	570	303	NR	700	39	NR	830	1	NR	960	0	NR
445	193	NR	575	311	NR	705	33	NR	835	1	NR	965	0	NR
450	312	NR	580	319	NR	710	28	NR	840	1	NR	970	0	NR
455	300	NR	585	326	NR	715	24	NR	845	0	NR	975	0	NR
460	214	NR	590	332	NR	720	20	NR	850	0	NR	980	0	NR
465	184	NR	595	333	NR	725	17	NR	855	0	NR	985	0	NR
470	153	NR	600	336	NR	730	15	NR	860	0	NR	990	0	NR
475	122	NR	605	337	NR	735	12	NR	865	0	NR	995	0	NR
480	115	NR	610	367	NR	740	10	NR	870	0	NR	1000	0	NR
485	125	NR	615	390	NR	745	9	NR	875	0	NR			

Summary

$R_f = 91.3$
 $R_g = 100$
 $CIE R_a = 94.6$
 $R_9 = 63.8$

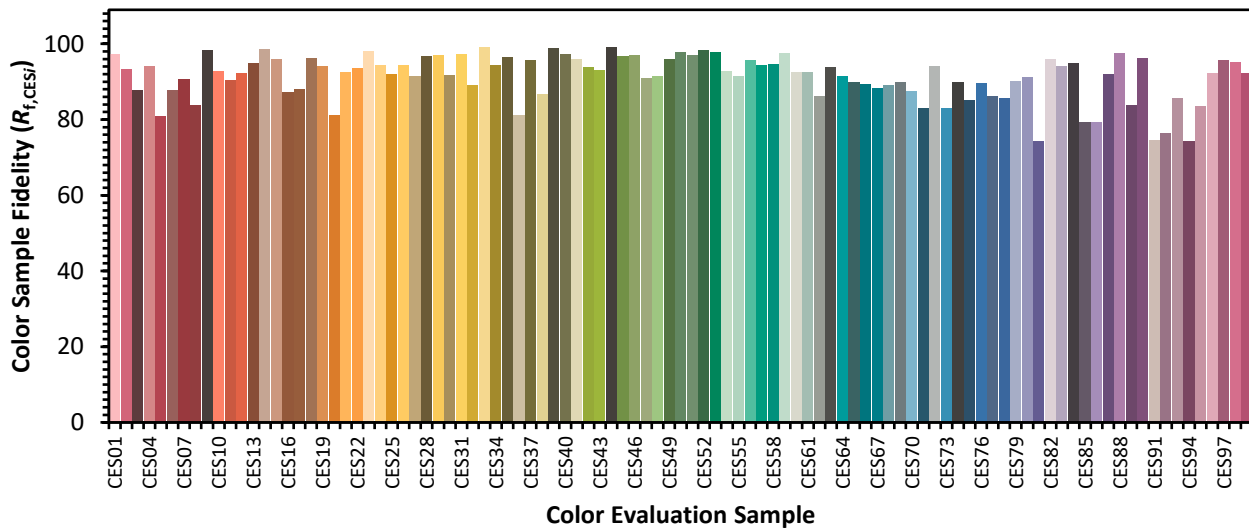


Color Vector Graphics



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

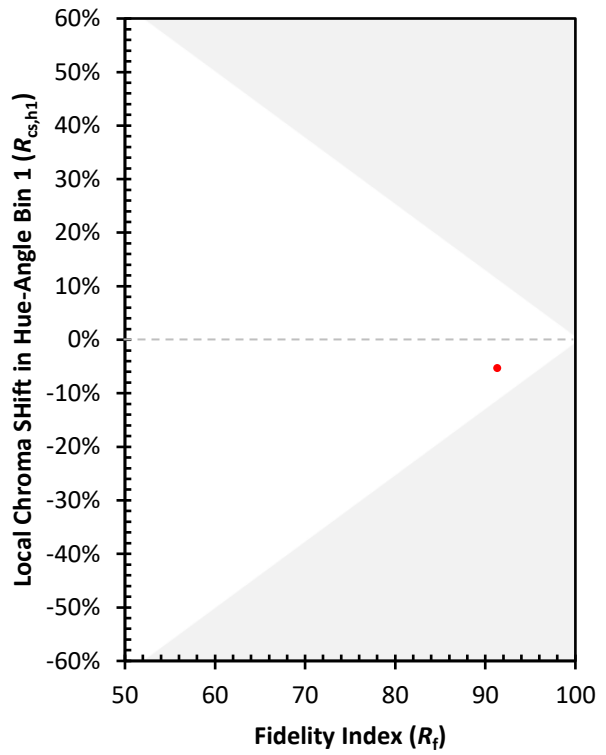
CES01 = 86	CES26 = 94	CES51 = 97	CES76 = 90
CES02 = 63	CES27 = 92	CES52 = 98	CES77 = 86
CES03 = 31	CES28 = 97	CES53 = 98	CES78 = 86
CES04 = 70	CES29 = 97	CES54 = 93	CES79 = 90
CES05 = 50	CES30 = 92	CES55 = 92	CES80 = 91
CES06 = 51	CES31 = 97	CES56 = 96	CES81 = 74
CES07 = 43	CES32 = 89	CES57 = 94	CES82 = 96
CES08 = 41	CES33 = 99	CES58 = 95	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 98	CES84 = 95
CES10 = 75	CES35 = 97	CES60 = 92	CES85 = 79
CES11 = 58	CES36 = 81	CES61 = 93	CES86 = 79
CES12 = 64	CES37 = 96	CES62 = 86	CES87 = 92
CES13 = 44	CES38 = 87	CES63 = 94	CES88 = 98
CES14 = 74	CES39 = 99	CES64 = 91	CES89 = 84
CES15 = 72	CES40 = 97	CES65 = 90	CES90 = 96
CES16 = 48	CES41 = 96	CES66 = 89	CES91 = 75
CES17 = 49	CES42 = 94	CES67 = 88	CES92 = 76
CES18 = 56	CES43 = 93	CES68 = 89	CES93 = 86
CES19 = 71	CES44 = 99	CES69 = 90	CES94 = 74
CES20 = 67	CES45 = 97	CES70 = 88	CES95 = 83
CES21 = 86	CES46 = 97	CES71 = 83	CES96 = 92
CES22 = 78	CES47 = 91	CES72 = 94	CES97 = 96
CES23 = 91	CES48 = 91	CES73 = 83	CES98 = 95
CES24 = 90	CES49 = 96	CES74 = 90	CES99 = 92
CES25 = 71	CES50 = 98	CES75 = 85	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)