

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: P1432333

Luminaire Tested: EHBR1-24-UNV-TASM-L830-UPL18

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1432333
REPORT IS A COMBINATION OF REPORTS P1431710 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-24-UNV-TASM-L830-UPL18
Description: Elevate Round Highbay at, 24000 lumens, 3000K 80CRI LEDs with TASM lens
Light Source: -
Ballast/Driver: -

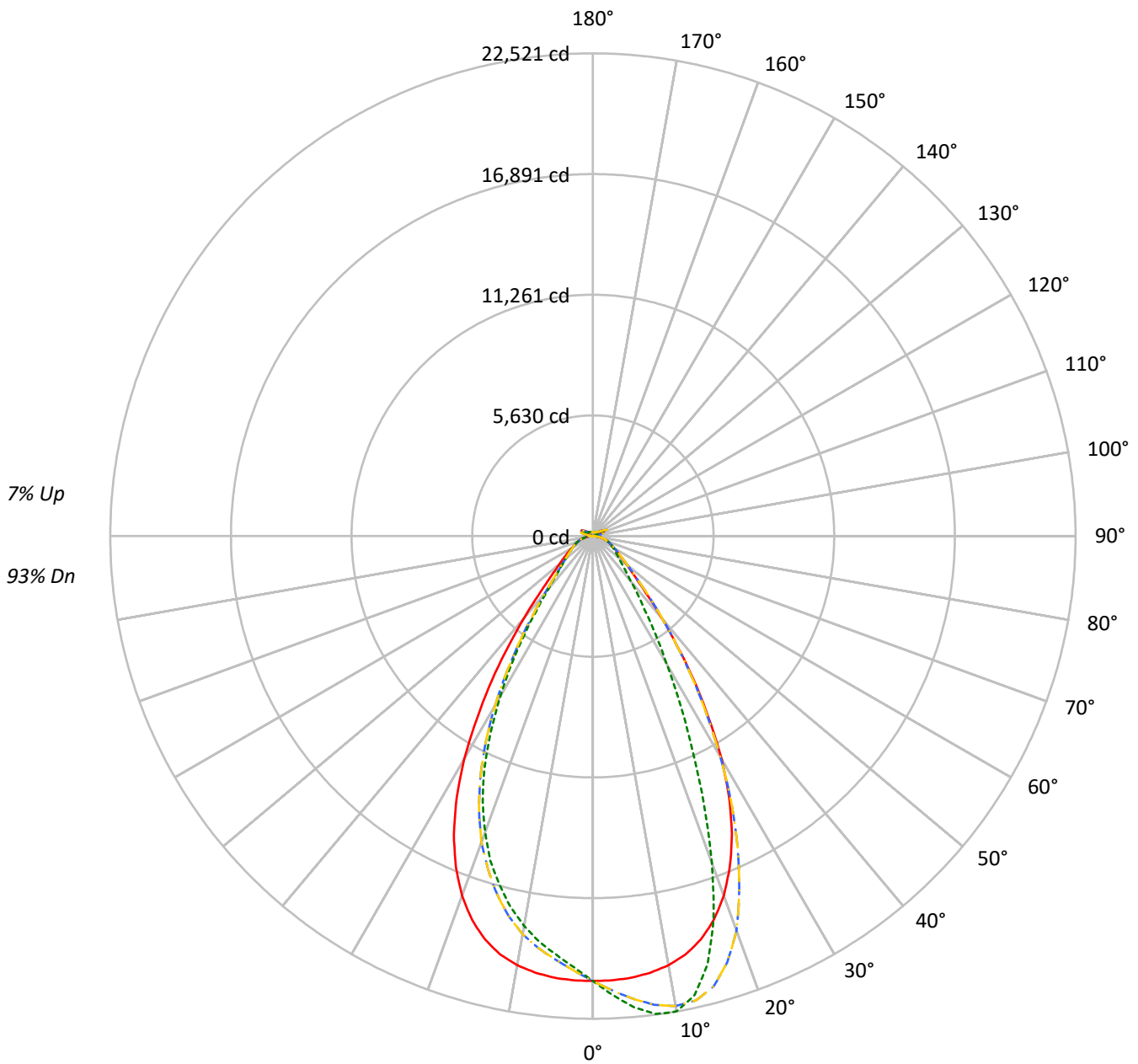
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 24935.1 lumens
Efficiency: N/A
Efficacy: 177.9 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): 140.2
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				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	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	96	96	96	93
1	110	107	104	101	107	104	101	99	98	96	94	93	92	90	89	88	86	86	86	86	84
2	103	97	92	88	100	95	90	86	90	87	84	86	83	81	82	80	78	78	78	78	76
3	97	89	83	78	94	87	81	77	83	79	75	80	76	73	77	74	71	71	71	71	69
4	91	82	75	70	88	80	74	69	77	72	68	74	70	66	71	68	65	65	65	65	63
5	85	76	69	64	83	74	68	63	72	66	62	69	64	61	67	63	60	60	60	60	58
6	80	70	63	58	78	69	63	58	67	61	57	65	60	56	63	58	55	55	55	55	53
7	76	65	59	54	74	64	58	53	62	57	53	60	55	52	59	54	51	51	51	51	49
8	72	61	54	50	70	60	54	49	58	53	49	57	52	48	55	51	47	47	47	47	46
9	68	57	51	46	66	56	50	46	55	49	45	54	48	45	52	48	44	44	44	44	43
10	65	54	47	43	63	53	47	43	52	46	42	51	46	42	49	45	42	42	42	42	40

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	97467	97467	97467	97467
5°	96873	103346	96873	91846
10°	95682	105998	95682	86924
15°	92857	98506	92857	80295
20°	86845	78988	86845	71520
25°	76865	54728	76865	59937
30°	62411	35604	62411	44845
35°	44763	23058	44763	29854
40°	28941	15893	28941	18828
45°	18363	12311	18363	13414
50°	13636	10461	13636	11174
55°	11133	9529	11133	9863
60°	9641	9078	9641	9133
65°	8788	8755	8788	8717
70°	8330	8577	8330	8467
75°	7789	8297	7789	8050
80°	6843	7835	6843	7324
85°	4428	5592	4428	5333

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 25817 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1973.5	7.9
10°-20°	5368.9	21.5
20°-30°	6296.6	25.3
30°-40°	4378.9	17.6
40°-50°	2176.1	8.7
50°-60°	1301.5	5.2
60°-70°	916.1	3.7
70°-80°	590.1	2.4
80°-90°	190.5	0.8
90°-100°	46.5	0.2
100°-110°	302.5	1.2
110°-120°	558.6	2.2
120°-130°	332.3	1.3
130°-140°	201.3	0.8
140°-150°	139.6	0.6
150°-160°	91.5	0.4
160°-170°	52.9	0.2
170°-180°	17.7	0.1
0°-30°	13639.0	54.7
0°-40°	18017.9	72.3
0°-60°	21495.6	86.2
0°-90°	23192.3	93.0
90°-120°	907.7	3.6
90°-150°	1580.8	6.3
90°-180°	1743.0	7.0
0°-180°	24935.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	20755	20755	20755	20755	20755	
5°	20684	22066	20684	19611	20684	1963
15°	19481	20666	19481	16845	19481	5444
25°	15350	10929	15350	11969	15350	6949
35°	8216	4232	8216	5479	8216	5129
45°	2971	1992	2971	2170	2971	2431
55°	1504	1288	1504	1333	1504	1376
65°	917	914	917	910	917	921
75°	549	584	549	567	549	576
85°	152	192	152	183	152	169
90°	13	16	13	13	13	13
95°	25	24	25	22	25	26
105°	139	72	139	105	139	187
115°	594	508	594	483	594	542
125°	381	400	381	349	381	351
135°	241	279	241	255	241	191
145°	219	229	219	213	219	137
155°	195	204	195	190	195	91
165°	185	191	185	182	185	53
175°	186	190	186	182	186	18
180°	185	185	185	185	185	



TEST NUMBER: P1432333
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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8
2.5°	20742.7	21010.9	21228.0	21371.2	21442.0	21371.2	21228.0	21010.9	20742.7	20476.1	20292.8
5°	20683.9	21221.0	21675.9	21973.7	22065.9	21973.7	21675.9	21221.0	20683.9	20176.4	19839.8
7.5°	20543.4	21380.2	22056.1	22403.7	22488.5	22403.7	22056.1	21380.2	20543.4	19825.0	19399.6
10°	20329.0	21480.6	22261.6	22510.7	22520.8	22510.7	22261.6	21480.6	20329.0	19361.1	18859.4
12.5°	19986.8	21444.7	22192.8	22111.0	21925.4	22111.0	22192.8	21444.7	19986.8	18794.4	18161.7
15°	19480.9	21232.7	21756.5	21091.4	20666.0	21091.4	21756.5	21232.7	19480.9	18029.3	17295.3
17.5°	18768.0	20835.7	20845.8	19530.0	18727.5	19530.0	20845.8	20835.7	18768.0	17093.7	16285.3
20°	17849.1	20199.0	19591.8	17185.1	16234.4	17185.1	19591.8	20199.0	17849.1	15987.7	15194.5
22.5°	16697.1	19340.4	17845.6	14826.3	13529.2	14826.3	17845.6	19340.4	16697.1	14701.4	13875.9
25°	15349.8	18288.5	15967.0	12256.2	10929.1	12256.2	15967.0	18288.5	15349.8	13168.8	12422.4
27.5°	13765.0	16955.2	13966.6	10015.2	8790.8	10015.2	13966.6	16955.2	13765.0	11586.3	10824.0
30°	12004.8	15245.9	11884.9	7975.9	6848.5	7975.9	11884.9	15245.9	12004.8	9808.6	9126.0
32.5°	10033.9	13570.4	9885.7	6390.8	5435.7	6390.8	9885.7	13570.4	10033.9	8112.1	7398.8
35°	8215.7	11474.3	8083.0	5021.6	4232.0	5021.6	8083.0	11474.3	8215.7	6510.7	5810.1
37.5°	6447.6	9493.7	6443.3	4043.6	3432.6	4043.6	6443.3	9493.7	6447.6	5061.7	4493.1
40°	5016.2	7423.2	5048.5	3227.9	2754.7	3227.9	5048.5	7423.2	5016.2	3851.4	3487.5
42.5°	3800.8	5676.3	3968.1	2649.2	2339.8	2649.2	3968.1	5676.3	3800.8	3034.5	2762.1
45°	2971.1	4177.1	3098.6	2235.1	1991.8	2235.1	3098.6	4177.1	2971.1	2443.7	2260.7
47.5°	2419.5	3228.3	2511.4	1917.2	1746.7	1917.2	2511.4	3228.3	2419.5	2066.9	1930.0
50°	2032.3	2477.1	2085.2	1673.5	1559.1	1673.5	2085.2	2477.1	2032.3	1770.0	1678.6
52.5°	1745.8	2020.3	1775.8	1491.3	1414.3	1491.3	1775.8	2020.3	1745.8	1548.6	1491.7
55°	1504.5	1698.4	1544.3	1341.1	1287.8	1341.1	1544.3	1698.4	1504.5	1378.1	1336.0
57.5°	1321.3	1440.8	1341.1	1213.0	1177.6	1213.0	1341.1	1440.8	1321.3	1226.3	1203.8
60°	1159.0	1247.7	1183.5	1101.4	1091.3	1101.4	1183.5	1247.7	1159.0	1103.3	1088.5
62.5°	1034.0	1090.1	1046.5	1001.0	992.1	1001.0	1046.5	1090.1	1034.0	991.2	993.9
65°	917.3	969.5	935.2	910.7	913.8	910.7	935.2	969.5	917.3	897.5	901.8
67.5°	827.0	854.3	839.5	825.4	829.0	825.4	839.5	854.3	827.0	807.5	814.2
70°	730.9	760.0	744.9	746.8	752.6	746.8	744.9	760.0	730.9	725.0	730.1
72.5°	639.0	661.6	656.5	661.2	667.4	661.2	656.5	661.6	639.0	638.3	638.6
75°	548.7	565.9	568.2	574.9	584.5	574.9	568.2	565.9	548.7	542.9	549.9
77.5°	450.3	469.8	477.2	486.1	500.5	486.1	477.2	469.8	450.3	454.2	457.7
80°	360.0	369.0	385.3	391.9	412.2	391.9	385.3	369.0	360.0	353.4	358.5
82.5°	263.5	271.6	285.7	298.2	309.8	298.2	285.7	271.6	263.5	260.4	260.8
85°	152.2	164.6	173.9	188.7	192.2	188.7	173.9	164.6	152.2	155.7	152.2
87.5°	53.3	57.2	65.4	71.2	71.6	71.2	65.4	57.2	53.3	54.5	49.5
90°	12.8	21.8	37.6	21.5	15.5	21.5	37.6	21.8	12.8	22.5	34.9
92.5°	16.7	29.5	52.9	28.3	20.3	28.3	52.9	29.5	16.7	29.1	56.0
95°	24.7	36.3	67.3	31.1	24.2	31.1	67.3	36.3	24.7	38.8	78.1
97.5°	38.2	44.9	76.0	33.1	29.0	33.1	76.0	44.9	38.2	47.4	89.6
100°	50.7	50.7	138.4	37.8	32.9	37.8	138.4	50.7	50.7	58.4	139.6
102.5°	76.6	99.0	320.4	74.7	39.5	74.7	320.4	99.0	76.6	109.2	296.1
105°	139.0	225.7	563.2	190.9	71.7	190.9	563.2	225.7	139.0	228.3	527.5
107.5°	262.8	420.7	725.5	375.2	164.8	375.2	725.5	420.7	262.8	404.0	695.8
110°	420.3	587.7	791.7	513.5	331.8	513.5	791.7	587.7	420.3	554.7	729.4



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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°	547.0	654.9	773.4	569.1	458.5	569.1	773.4	654.9	547.0	612.3	698.7
115°	594.4	645.3	690.9	567.3	508.4	567.3	690.9	645.3	594.4	597.9	623.8
117.5°	574.3	590.6	596.9	532.7	511.3	532.7	596.9	590.6	574.3	537.8	529.7
120°	518.6	511.9	503.1	481.7	482.5	481.7	503.1	511.9	518.6	469.7	442.4
122.5°	449.0	434.5	425.4	430.3	443.2	430.3	425.4	434.5	449.0	400.0	379.4
125°	380.8	366.4	371.0	386.1	399.5	386.1	371.0	366.4	380.8	339.9	334.7
127.5°	323.5	316.9	331.6	348.7	360.1	348.7	331.6	316.9	323.5	297.7	303.0
130°	282.7	284.2	303.8	318.4	325.5	318.4	303.8	284.2	282.7	270.2	283.3
132.5°	257.1	264.4	283.1	295.8	300.0	295.8	283.1	264.4	257.1	253.7	269.6
135°	241.2	252.0	269.0	277.1	278.9	277.1	269.0	252.0	241.2	242.5	257.1
137.5°	231.9	242.7	255.6	262.2	260.7	262.2	255.6	242.7	231.9	235.3	246.4
140°	226.7	237.4	243.1	250.7	249.5	250.7	243.1	237.4	226.7	228.6	237.3
142.5°	221.3	231.0	233.9	239.5	238.0	239.5	233.9	231.0	221.3	223.2	228.9
145°	218.8	226.1	223.8	230.9	228.7	230.9	223.8	226.1	218.8	219.4	222.7
147.5°	213.9	219.4	216.5	222.7	220.5	222.7	216.5	219.4	213.9	213.9	215.3
150°	208.6	212.4	208.2	215.3	215.1	215.3	208.2	212.4	208.6	207.7	209.0
152.5°	201.3	205.1	201.3	209.4	208.8	209.4	201.3	205.1	201.3	200.4	201.7
155°	195.3	197.3	195.3	203.5	203.8	203.5	195.3	197.3	195.3	194.9	195.8
157.5°	191.4	192.7	191.7	198.9	199.2	198.9	191.7	192.7	191.4	191.4	191.7
160°	188.1	190.0	189.5	195.6	196.0	195.6	189.5	190.0	188.1	188.7	189.0
162.5°	187.0	187.0	186.8	192.9	193.6	192.9	186.8	187.0	187.0	187.0	187.9
165°	185.2	186.2	185.0	189.7	191.4	189.7	185.0	186.2	185.2	185.8	185.8
167.5°	185.0	184.1	184.9	188.9	190.7	188.9	184.9	184.1	185.0	185.6	185.6
170°	183.6	184.0	183.7	187.8	189.5	187.8	183.7	184.0	183.6	184.5	185.0
172.5°	184.7	184.7	184.0	187.1	189.7	187.1	184.0	184.7	184.7	185.3	186.2
175°	185.5	184.9	184.7	186.8	189.6	186.8	184.7	184.9	185.5	185.1	185.1
177.5°	184.4	185.3	186.0	188.3	191.8	188.3	186.0	185.3	184.4	185.1	185.1
180°	185.3	185.3	185.3	185.3	185.3	185.3	185.3	185.3	185.3	185.3	185.3



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	20754.8	20754.8	20754.8	20754.8	20754.8	20754.8
2.5°	20151.9	20138.7	20151.9	20292.8	20476.1	20742.7
5°	19683.7	19610.6	19683.7	19839.8	20176.4	20683.9
7.5°	19138.5	19096.0	19138.5	19399.6	19825.0	20543.4
10°	18564.4	18468.2	18564.4	18859.4	19361.1	20329.0
12.5°	17856.9	17729.7	17856.9	18161.7	18794.4	19986.8
15°	16957.1	16845.4	16957.1	17295.3	18029.3	19480.9
17.5°	15991.5	15890.3	15991.5	16285.3	17093.7	18768.0
20°	14778.8	14699.4	14778.8	15194.5	15987.7	17849.1
22.5°	13506.6	13432.2	13506.6	13875.9	14701.4	16697.1
25°	12009.8	11969.4	12009.8	12422.4	13168.8	15349.8
27.5°	10392.3	10323.5	10392.3	10824.0	11586.3	13765.0
30°	8739.9	8625.9	8739.9	9126.0	9808.6	12004.8
32.5°	7123.6	7041.5	7123.6	7398.8	8112.1	10033.9
35°	5561.4	5479.3	5561.4	5810.1	6510.7	8215.7
37.5°	4333.6	4188.4	4333.6	4493.1	5061.7	6447.6
40°	3286.6	3263.3	3286.6	3487.5	3851.4	5016.2
42.5°	2675.6	2612.2	2675.6	2762.1	3034.5	3800.8
45°	2195.4	2170.4	2195.4	2260.7	2443.7	2971.1
47.5°	1887.9	1898.8	1887.9	1930.0	2066.9	2419.5
50°	1658.7	1665.3	1658.7	1678.6	1770.0	2032.3
52.5°	1489.8	1483.9	1489.8	1491.7	1548.6	1745.8
55°	1340.3	1332.9	1340.3	1336.0	1378.1	1504.5
57.5°	1209.6	1215.0	1209.6	1203.8	1226.3	1321.3
60°	1092.9	1097.9	1092.9	1088.5	1103.3	1159.0
62.5°	994.3	997.5	994.3	993.9	991.2	1034.0
65°	906.5	909.9	906.5	901.8	897.5	917.3
67.5°	822.3	822.3	822.3	814.2	807.5	827.0
70°	743.4	742.9	743.4	730.1	725.0	730.9
72.5°	648.4	657.8	648.4	638.6	638.3	639.0
75°	556.1	567.1	556.1	549.9	542.9	548.7
77.5°	462.7	479.5	462.7	457.7	454.2	450.3
80°	367.0	385.3	367.0	358.5	353.4	360.0
82.5°	271.3	284.9	271.3	260.8	260.4	263.5
85°	161.5	183.3	161.5	152.2	155.7	152.2
87.5°	51.8	66.1	51.8	49.5	54.5	53.3
90°	20.5	12.8	20.5	34.9	22.5	12.8
92.5°	31.1	18.6	31.1	56.0	29.1	16.7
95°	35.9	21.5	35.9	78.1	38.8	24.7
97.5°	39.7	27.6	39.7	89.6	47.4	38.2
100°	46.5	36.3	46.5	139.6	58.4	50.7
102.5°	98.3	61.3	98.3	296.1	109.2	76.6
105°	206.8	105.4	206.8	527.5	228.3	139.0
107.5°	370.0	182.2	370.0	695.8	404.0	262.8
110°	490.9	339.7	490.9	729.4	554.7	420.3



TEST NUMBER: P1432333

CATALOG NUMBER: EHBR1-24-UNV-TASM-L830-UPL18

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	527.5	458.7	527.5	698.7	612.3	547.0
115°	507.3	482.7	507.3	623.8	597.9	594.4
117.5°	463.1	466.4	463.1	529.7	537.8	574.3
120°	412.2	431.8	412.2	442.4	469.7	518.6
122.5°	365.6	388.6	365.6	379.4	400.0	449.0
125°	325.2	348.6	325.2	334.7	339.9	380.8
127.5°	297.4	313.1	297.4	303.0	297.7	323.5
130°	275.7	289.2	275.7	283.3	270.2	282.7
132.5°	260.8	269.5	260.8	269.6	253.7	257.1
135°	247.8	255.1	247.8	257.1	242.5	241.2
137.5°	236.6	243.0	236.6	246.4	235.3	231.9
140°	226.8	232.2	226.8	237.3	228.6	226.7
142.5°	216.6	220.4	216.6	228.9	223.2	221.3
145°	209.7	212.6	209.7	222.7	219.4	218.8
147.5°	203.8	205.7	203.8	215.3	213.9	213.9
150°	197.8	199.7	197.8	209.0	207.7	208.6
152.5°	191.5	193.9	191.5	201.7	200.4	201.3
155°	187.5	189.8	187.5	195.8	194.9	195.3
157.5°	185.4	187.1	185.4	191.7	191.4	191.4
160°	183.7	185.1	183.7	189.0	188.7	188.1
162.5°	181.6	182.9	181.6	187.9	187.0	187.0
165°	181.3	181.7	181.3	185.8	185.8	185.2
167.5°	180.8	181.7	180.8	185.6	185.6	185.0
170°	181.2	181.6	181.2	185.0	184.5	183.6
172.5°	182.0	182.4	182.0	186.2	185.3	184.7
175°	181.8	182.2	181.8	185.1	185.1	185.5
177.5°	183.1	183.5	183.1	185.1	185.1	184.4
180°	185.3	185.3	185.3	185.3	185.3	185.3



TEST NUMBER: P1432333
 CATALOG NUMBER: EHBR1-24-UNV-TASM-L830-UPL18

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	16.53	17.63	17.01	18.08	18.58	15.84	16.94	16.33	17.40	17.89
	3H	18.07	19.05	18.58	19.53	20.06	17.69	18.67	18.19	19.14	19.68
	4H	18.71	19.62	19.23	20.11	20.67	18.47	19.39	19.00	19.88	20.43
	6H	19.19	20.03	19.73	20.54	21.10	19.11	19.96	19.65	20.46	21.03
	8H	19.34	20.14	19.89	20.66	21.23	19.34	20.13	19.89	20.66	21.23
	12H	19.41	20.17	19.97	20.69	21.29	19.46	20.22	20.02	20.74	21.34
4H	2H	16.94	17.85	17.47	18.34	18.90	16.42	17.33	16.94	17.82	18.38
	3H	18.74	19.49	19.27	20.03	20.60	18.47	19.23	19.01	19.77	20.34
	4H	19.51	20.19	20.07	20.74	21.35	19.38	20.06	19.94	20.61	21.22
	6H	20.12	20.71	20.71	21.28	21.91	20.15	20.74	20.73	21.31	21.94
	8H	20.32	20.87	20.91	21.44	22.07	20.42	20.97	21.01	21.54	22.17
	12H	20.43	20.91	21.03	21.51	22.15	20.59	21.07	21.19	21.68	22.31
8H	4H	19.76	20.31	20.35	20.88	21.51	19.66	20.21	20.25	20.78	21.41
	6H	20.50	20.94	21.12	21.56	22.20	20.57	21.01	21.18	21.63	22.27
	8H	20.77	21.17	21.41	21.80	22.45	20.92	21.31	21.55	21.95	22.60
	12H	20.94	21.29	21.57	21.90	22.63	21.17	21.51	21.80	22.13	22.85
12H	4H	19.77	20.25	20.37	20.85	21.49	19.67	20.15	20.27	20.76	21.39
	6H	20.54	20.94	21.18	21.57	22.22	20.61	21.01	21.25	21.64	22.29
	8H	20.86	21.21	21.49	21.82	22.55	21.01	21.36	21.64	21.97	22.70

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: SP1-2506-472-2

Test Date: 07/31/2025

Luminaire Tested: EHBR-60-L830-N

Data in this report applies to families of products including EHBR-60-L830-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-2
 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-L830-N**
 Description: Elevate Round Highbay at, 60000 lumens, 3000K 80CRI LEDs with N lens

Spectral Parameters

CCT (K): 2983
 CIE u': 0.2516
 CIE v': 0.5201
 Duv: -0.0012
 CIE x: 0.4364
 CIE y: 0.4010
 CIE z: 0.1626
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 51.34918
 Rf: 81.2
 Rg: 101.5

CRI (Ra):	83.4		
R1:	84.0	R9:	29.4
R2:	87.5	R10:	68.6
R3:	88.9	R11:	82.2
R4:	83.8	R12:	61.6
R5:	81.9	R13:	83.9
R6:	83.1	R14:	92.5
R7:	87.1	R15:	79.8
R8:	70.9		



Test Conditions

Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-2

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

REPORT NUMBER: SP1-2506-472-2

CIE 1931 Chromaticity Diagram



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

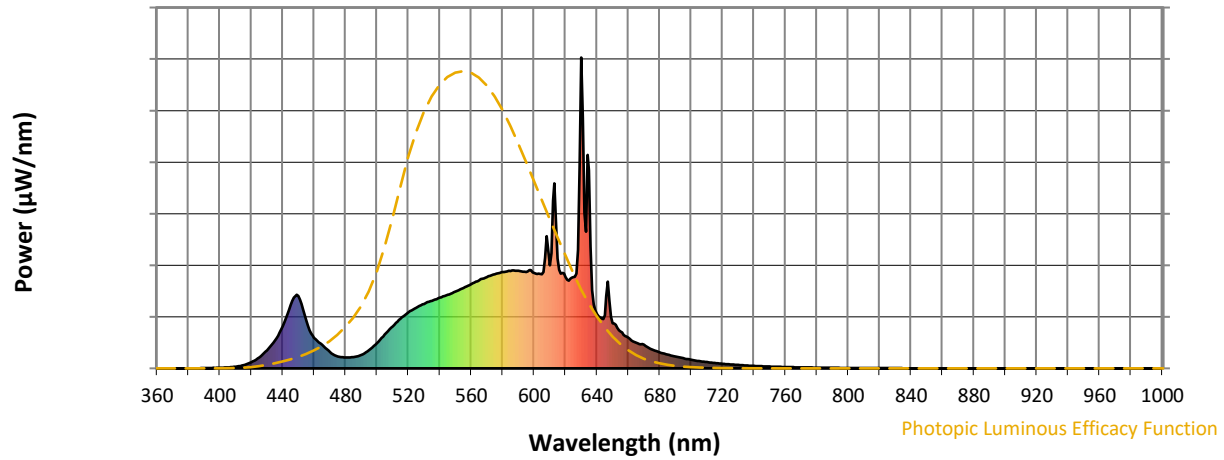


CCT = 2983K
 CIE x = 0.4364
 CIE y = 0.4010
 Duv = -0.0012

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2506-472-2

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	43	NR	620	294	NR	750	6	NR	880	0	NR
365	0	NR	495	59	NR	625	294	NR	755	5	NR	885	0	NR
370	0	NR	500	81	NR	630	1000	NR	760	4	NR	890	0	NR
375	0	NR	505	109	NR	635	637	NR	765	4	NR	895	0	NR
380	0	NR	510	135	NR	640	175	NR	770	3	NR	900	0	NR
385	0	NR	515	160	NR	645	171	NR	775	3	NR	905	0	NR
390	1	NR	520	180	NR	650	146	NR	780	2	NR	910	0	NR
395	1	NR	525	195	NR	655	119	NR	785	2	NR	915	0	NR
400	2	NR	530	207	NR	660	99	NR	790	2	NR	920	0	NR
405	3	NR	535	218	NR	665	82	NR	795	2	NR	925	0	NR
410	5	NR	540	227	NR	670	76	NR	800	1	NR	930	0	NR
415	10	NR	545	237	NR	675	61	NR	805	1	NR	935	0	NR
420	20	NR	550	247	NR	680	52	NR	810	1	NR	940	0	NR
425	35	NR	555	259	NR	685	44	NR	815	1	NR	945	0	NR
430	58	NR	560	271	NR	690	38	NR	820	1	NR	950	0	NR
435	90	NR	565	283	NR	695	33	NR	825	1	NR	955	0	NR
440	135	NR	570	293	NR	700	27	NR	830	1	NR	960	0	NR
445	204	NR	575	303	NR	705	24	NR	835	1	NR	965	0	NR
450	233	NR	580	310	NR	710	20	NR	840	0	NR	970	0	NR
455	153	NR	585	313	NR	715	17	NR	845	0	NR	975	0	NR
460	98	NR	590	314	NR	720	15	NR	850	0	NR	980	0	NR
465	76	NR	595	310	NR	725	13	NR	855	0	NR	985	0	NR
470	53	NR	600	307	NR	730	11	NR	860	0	NR	990	0	NR
475	39	NR	605	303	NR	735	9	NR	865	0	NR	995	0	NR
480	35	NR	610	331	NR	740	8	NR	870	0	NR	1000	0	NR
485	36	NR	615	353	NR	745	7	NR	875	0	NR			

REPORT NUMBER: SP1-2506-472-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

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	43	NR	620	294	NR	750	6	NR	880	0	NR
365	0	NR	495	59	NR	625	294	NR	755	5	NR	885	0	NR
370	0	NR	500	81	NR	630	1000	NR	760	4	NR	890	0	NR
375	0	NR	505	109	NR	635	637	NR	765	4	NR	895	0	NR
380	0	NR	510	135	NR	640	175	NR	770	3	NR	900	0	NR
385	0	NR	515	160	NR	645	171	NR	775	3	NR	905	0	NR
390	1	NR	520	180	NR	650	146	NR	780	2	NR	910	0	NR
395	1	NR	525	195	NR	655	119	NR	785	2	NR	915	0	NR
400	2	NR	530	207	NR	660	99	NR	790	2	NR	920	0	NR
405	3	NR	535	218	NR	665	82	NR	795	2	NR	925	0	NR
410	5	NR	540	227	NR	670	76	NR	800	1	NR	930	0	NR
415	10	NR	545	237	NR	675	61	NR	805	1	NR	935	0	NR
420	20	NR	550	247	NR	680	52	NR	810	1	NR	940	0	NR
425	35	NR	555	259	NR	685	44	NR	815	1	NR	945	0	NR
430	58	NR	560	271	NR	690	38	NR	820	1	NR	950	0	NR
435	90	NR	565	283	NR	695	33	NR	825	1	NR	955	0	NR
440	135	NR	570	293	NR	700	27	NR	830	1	NR	960	0	NR
445	204	NR	575	303	NR	705	24	NR	835	1	NR	965	0	NR
450	233	NR	580	310	NR	710	20	NR	840	0	NR	970	0	NR
455	153	NR	585	313	NR	715	17	NR	845	0	NR	975	0	NR
460	98	NR	590	314	NR	720	15	NR	850	0	NR	980	0	NR
465	76	NR	595	310	NR	725	13	NR	855	0	NR	985	0	NR
470	53	NR	600	307	NR	730	11	NR	860	0	NR	990	0	NR
475	39	NR	605	303	NR	735	9	NR	865	0	NR	995	0	NR
480	35	NR	610	331	NR	740	8	NR	870	0	NR	1000	0	NR
485	36	NR	615	353	NR	745	7	NR	875	0	NR			

REPORT NUMBER: SP1-2506-472-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.34

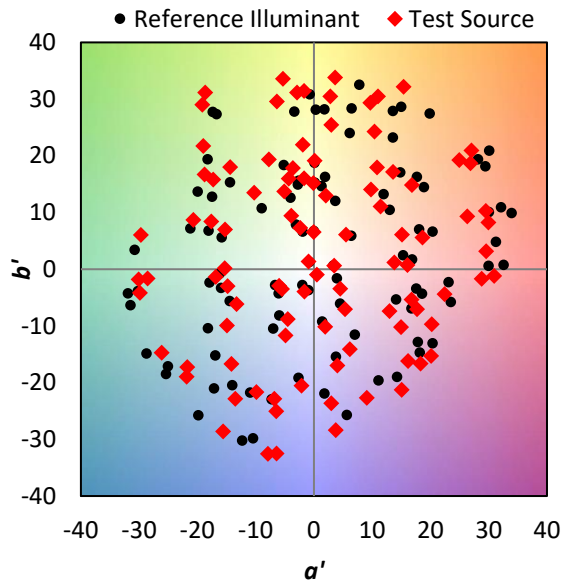
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	43	NR	620	294	NR	750	6	NR	880	0	NR
365	0	NR	495	59	NR	625	294	NR	755	5	NR	885	0	NR
370	0	NR	500	81	NR	630	1000	NR	760	4	NR	890	0	NR
375	0	NR	505	109	NR	635	637	NR	765	4	NR	895	0	NR
380	0	NR	510	135	NR	640	175	NR	770	3	NR	900	0	NR
385	0	NR	515	160	NR	645	171	NR	775	3	NR	905	0	NR
390	1	NR	520	180	NR	650	146	NR	780	2	NR	910	0	NR
395	1	NR	525	195	NR	655	119	NR	785	2	NR	915	0	NR
400	2	NR	530	207	NR	660	99	NR	790	2	NR	920	0	NR
405	3	NR	535	218	NR	665	82	NR	795	2	NR	925	0	NR
410	5	NR	540	227	NR	670	76	NR	800	1	NR	930	0	NR
415	10	NR	545	237	NR	675	61	NR	805	1	NR	935	0	NR
420	20	NR	550	247	NR	680	52	NR	810	1	NR	940	0	NR
425	35	NR	555	259	NR	685	44	NR	815	1	NR	945	0	NR
430	58	NR	560	271	NR	690	38	NR	820	1	NR	950	0	NR
435	90	NR	565	283	NR	695	33	NR	825	1	NR	955	0	NR
440	135	NR	570	293	NR	700	27	NR	830	1	NR	960	0	NR
445	204	NR	575	303	NR	705	24	NR	835	1	NR	965	0	NR
450	233	NR	580	310	NR	710	20	NR	840	0	NR	970	0	NR
455	153	NR	585	313	NR	715	17	NR	845	0	NR	975	0	NR
460	98	NR	590	314	NR	720	15	NR	850	0	NR	980	0	NR
465	76	NR	595	310	NR	725	13	NR	855	0	NR	985	0	NR
470	53	NR	600	307	NR	730	11	NR	860	0	NR	990	0	NR
475	39	NR	605	303	NR	735	9	NR	865	0	NR	995	0	NR
480	35	NR	610	331	NR	740	8	NR	870	0	NR	1000	0	NR
485	36	NR	615	353	NR	745	7	NR	875	0	NR			

Summary

$R_f = 81.2$
 $R_g = 101.5$
 CIE $R_a = 83.4$
 $R_9 = 29.4$



Color Vector Graphics



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

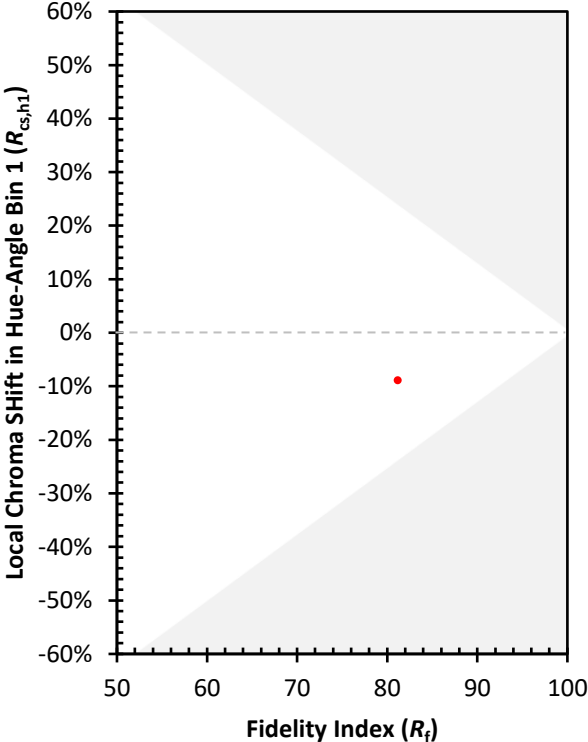
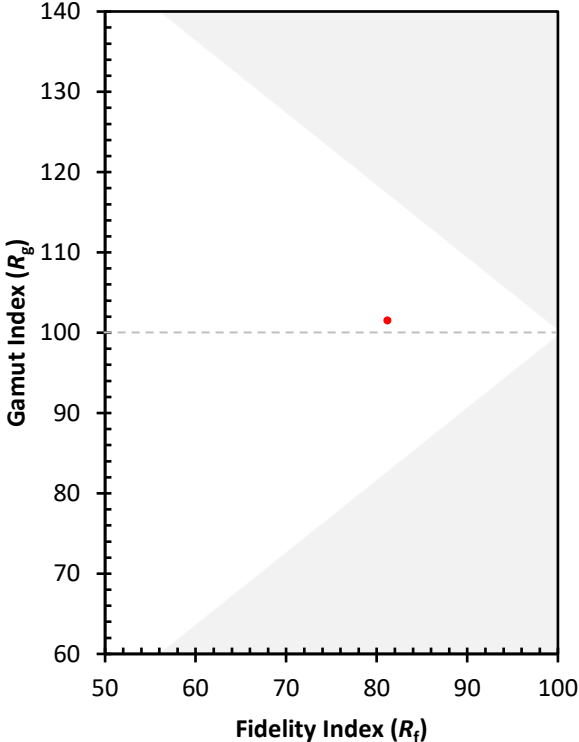
CES01 = 86	CES26 = 71	CES51 = 89	CES76 = 65
CES02 = 63	CES27 = 89	CES52 = 89	CES77 = 82
CES03 = 31	CES28 = 86	CES53 = 80	CES78 = 67
CES04 = 70	CES29 = 68	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 77	CES55 = 90	CES80 = 85
CES06 = 51	CES31 = 70	CES56 = 81	CES81 = 75
CES07 = 43	CES32 = 64	CES57 = 79	CES82 = 93
CES08 = 41	CES33 = 74	CES58 = 81	CES83 = 89
CES09 = 29	CES34 = 76	CES59 = 92	CES84 = 91
CES10 = 76	CES35 = 87	CES60 = 96	CES85 = 81
CES11 = 59	CES36 = 99	CES61 = 91	CES86 = 74
CES12 = 65	CES37 = 81	CES62 = 93	CES87 = 83
CES13 = 44	CES38 = 83	CES63 = 79	CES88 = 86
CES14 = 74	CES39 = 94	CES64 = 81	CES89 = 74
CES15 = 72	CES40 = 89	CES65 = 78	CES90 = 85
CES16 = 48	CES41 = 88	CES66 = 76	CES91 = 87
CES17 = 50	CES42 = 80	CES67 = 74	CES92 = 73
CES18 = 57	CES43 = 75	CES68 = 79	CES93 = 84
CES19 = 72	CES44 = 99	CES69 = 83	CES94 = 64
CES20 = 67	CES45 = 83	CES70 = 72	CES95 = 80
CES21 = 87	CES46 = 82	CES71 = 70	CES96 = 86
CES22 = 79	CES47 = 79	CES72 = 90	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 65	CES98 = 83
CES24 = 91	CES49 = 79	CES74 = 94	CES99 = 82
CES25 = 72	CES50 = 88	CES75 = 70	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)