

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: P1433421

Luminaire Tested: EHBR1-12-UNV-TASM-L935-UPL18

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433421
REPORT IS A COMBINATION OF REPORTS P1431646 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-12-UNV-TASM-L935-UPL18
Description: Elevate Round Highbay at, 12000 lumens, 3500K 90CRI LEDs with TASM lens
Light Source: -
Ballast/Driver: -

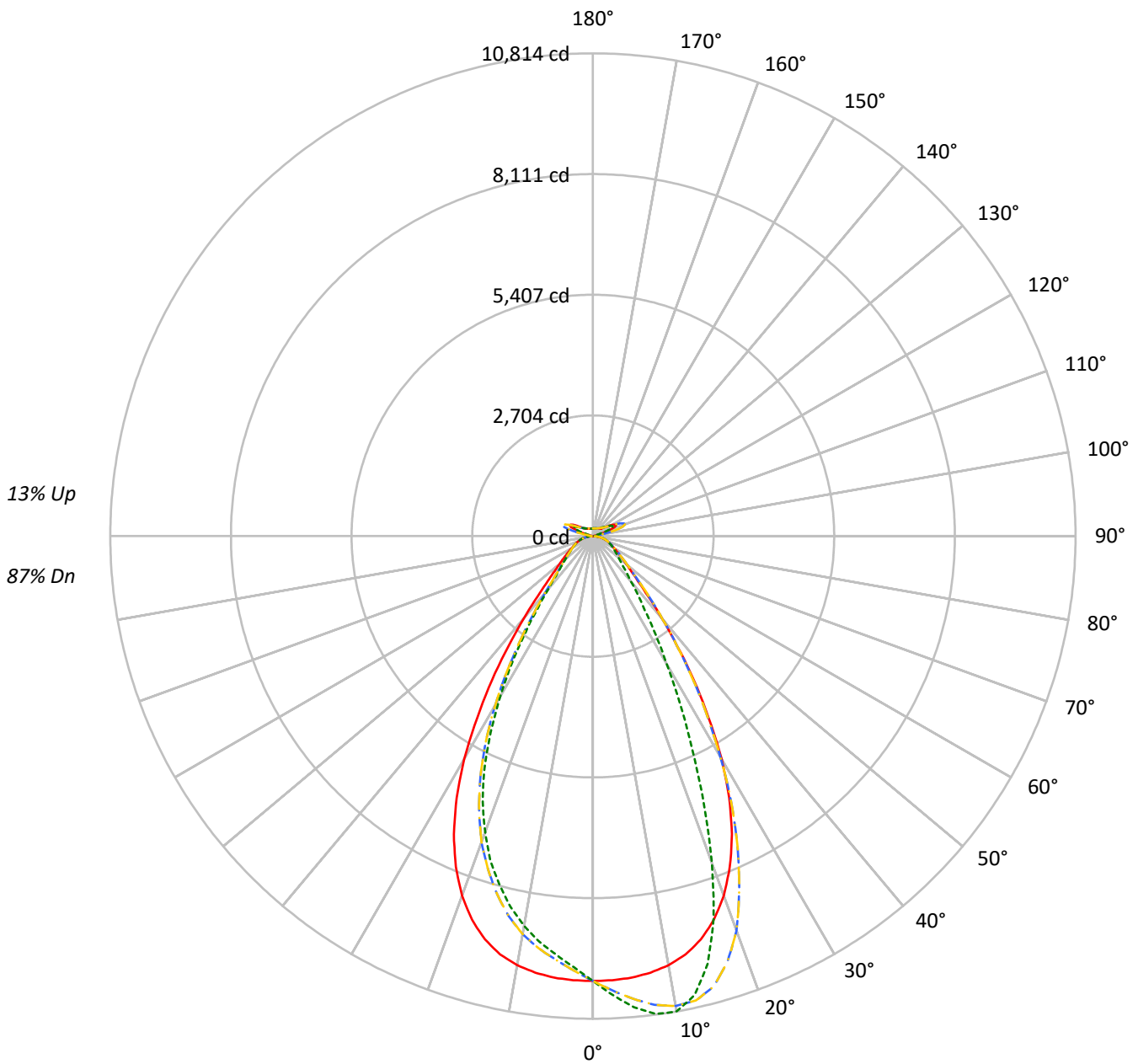
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12815.4 lumens
Efficiency: N/A
Efficacy: 167.3 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: Semi-Direct

Input Watts (W): 76.6
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

TEST NUMBER: P1433421
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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
RCR																				
0	116	116	116	116	112	112	112	112	104	104	104	97	97	97	90	90	90	90	90	87
1	109	105	102	99	105	102	99	96	95	93	91	89	87	86	84	82	81	81	81	78
2	102	96	91	86	98	93	88	84	87	84	80	82	79	77	78	75	73	73	73	71
3	95	87	81	76	92	85	79	75	80	76	72	76	72	69	72	69	67	67	67	64
4	89	80	74	68	86	78	72	67	74	69	65	70	66	63	67	64	61	61	61	59
5	84	74	67	62	81	72	66	61	69	63	59	66	61	58	63	59	56	56	56	54
6	79	68	62	57	76	67	60	56	64	58	54	61	57	53	59	55	52	52	52	50
7	74	64	57	52	72	62	56	51	60	54	50	57	53	49	55	51	48	48	48	46
8	70	59	53	48	68	58	52	47	56	50	46	54	49	46	52	48	45	45	45	43
9	66	56	49	45	65	55	48	44	53	47	43	51	46	42	49	45	42	42	42	40
10	63	52	46	41	61	51	45	41	50	44	40	48	43	40	46	42	39	39	39	37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	46800	46800	46800	46800
5°	46516	49624	46516	44102
10°	45944	50898	45944	41739
15°	44587	47300	44587	38555
20°	41700	37928	41700	34342
25°	36908	26279	36908	28780
30°	29968	17096	29968	21533
35°	21494	11072	21494	14335
40°	13897	7631	13897	9041
45°	8817	5912	8817	6441
50°	6547	5023	6547	5366
55°	5346	4576	5346	4737
60°	4629	4359	4629	4385
65°	4220	4204	4220	4186
70°	3999	4119	3999	4065
75°	3741	3985	3741	3865
80°	3285	3762	3285	3517
85°	2127	2688	2127	2560

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 12396 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	947.6	7.4
10°-20°	2578.0	20.1
20°-30°	3023.5	23.6
30°-40°	2102.6	16.4
40°-50°	1044.9	8.2
50°-60°	625.0	4.9
60°-70°	439.9	3.4
70°-80°	283.4	2.2
80°-90°	93.0	0.7
90°-100°	44.5	0.3
100°-110°	292.1	2.3
110°-120°	539.9	4.2
120°-130°	320.6	2.5
130°-140°	193.6	1.5
140°-150°	133.7	1.0
150°-160°	87.0	0.7
160°-170°	49.7	0.4
170°-180°	16.5	0.1
0°-30°	6549.1	51.1
0°-40°	8651.7	67.5
0°-60°	10321.6	80.5
0°-90°	11137.8	86.9
90°-120°	876.5	6.8
90°-150°	1524.5	11.9
90°-180°	1678.0	13.1
0°-180°	12815.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	9966	9966	9966	9966	9966	
5°	9932	10596	9932	9416	9932	943
15°	9354	9923	9354	8089	9354	2614
25°	7370	5248	7370	5747	7370	3337
35°	3945	2032	3945	2631	3945	2463
45°	1427	956	1427	1042	1427	1167
55°	722	618	722	640	722	661
65°	440	439	440	437	440	442
75°	264	281	264	272	264	277
85°	73	92	73	88	73	81
90°	12	14	12	12	12	9
95°	24	22	24	21	24	25
105°	134	68	134	102	134	181
115°	575	490	575	467	575	524
125°	368	385	368	337	368	338
135°	232	268	232	246	232	184
145°	210	219	210	204	210	131
155°	186	194	186	180	186	87
165°	174	179	174	171	174	50
175°	173	175	173	170	173	16
180°	172	172	172	172	172	



TEST NUMBER: P1433421
 CATALOG NUMBER: EHBR1-12-UNV-TASM-L935-UPL18

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8
2.5°	9960.0	10088.8	10193.0	10261.8	10295.8	10261.8	10193.0	10088.8	9960.0	9832.0	9744.0
5°	9931.8	10189.7	10408.2	10551.1	10595.5	10551.1	10408.2	10189.7	9931.8	9688.1	9526.5
7.5°	9864.4	10266.2	10590.7	10757.6	10798.4	10757.6	10590.7	10266.2	9864.4	9519.4	9315.2
10°	9761.4	10314.4	10689.4	10809.0	10813.9	10809.0	10689.4	10314.4	9761.4	9296.7	9055.8
12.5°	9597.1	10297.2	10656.4	10617.1	10527.9	10617.1	10656.4	10297.2	9597.1	9024.5	8720.7
15°	9354.2	10195.3	10446.8	10127.5	9923.2	10127.5	10446.8	10195.3	9354.2	8657.2	8304.7
17.5°	9011.8	10004.7	10009.6	9377.7	8992.4	9377.7	10009.6	10004.7	9011.8	8207.9	7819.8
20°	8570.6	9699.0	9407.4	8251.9	7795.3	8251.9	9407.4	9699.0	8570.6	7676.8	7296.0
22.5°	8017.5	9286.7	8569.0	7119.2	6496.3	7119.2	8569.0	9286.7	8017.5	7059.2	6662.8
25°	7370.5	8781.6	7666.9	5885.1	5247.8	5885.1	7666.9	8781.6	7370.5	6323.3	5964.8
27.5°	6609.6	8141.4	6706.4	4809.1	4221.1	4809.1	6706.4	8141.4	6609.6	5563.4	5197.3
30°	5764.3	7320.6	5706.8	3829.8	3288.4	3829.8	5706.8	7320.6	5764.3	4709.8	4382.0
32.5°	4818.0	6516.2	4746.8	3068.7	2610.0	3068.7	4746.8	6516.2	4818.0	3895.2	3552.6
35°	3944.9	5509.7	3881.2	2411.2	2032.1	2411.2	3881.2	5509.7	3944.9	3126.2	2789.9
37.5°	3095.9	4558.7	3093.9	1941.6	1648.3	1941.6	3093.9	4558.7	3095.9	2430.5	2157.4
40°	2408.7	3564.4	2424.2	1549.9	1322.7	1549.9	2424.2	3564.4	2408.7	1849.3	1674.6
42.5°	1825.0	2725.6	1905.4	1272.0	1123.5	1272.0	1905.4	2725.6	1825.0	1457.1	1326.2
45°	1426.6	2005.7	1487.9	1073.2	956.5	1073.2	1487.9	2005.7	1426.6	1173.4	1085.5
47.5°	1161.8	1550.1	1205.9	920.6	838.7	920.6	1205.9	1550.1	1161.8	992.5	926.7
50°	975.8	1189.5	1001.3	803.6	748.6	803.6	1001.3	1189.5	975.8	849.9	806.0
52.5°	838.4	970.0	852.7	716.1	679.1	716.1	852.7	970.0	838.4	743.6	716.3
55°	722.4	815.5	741.6	643.9	618.4	643.9	741.6	815.5	722.4	661.7	641.5
57.5°	634.4	691.8	643.9	582.5	565.5	582.5	643.9	691.8	634.4	588.8	578.0
60°	556.5	599.1	568.3	528.8	524.0	528.8	568.3	599.1	556.5	529.7	522.7
62.5°	496.5	523.4	502.5	480.6	476.4	480.6	502.5	523.4	496.5	476.0	477.3
65°	440.5	465.5	449.1	437.3	438.8	437.3	449.1	465.5	440.5	431.0	433.0
67.5°	397.2	410.2	403.0	396.3	398.1	396.3	403.0	410.2	397.2	387.7	390.9
70°	350.9	365.0	357.6	358.6	361.4	358.6	357.6	365.0	350.9	348.1	350.6
72.5°	306.9	317.7	315.2	317.5	320.5	317.5	315.2	317.7	306.9	306.4	306.7
75°	263.5	271.7	272.8	276.0	280.7	276.0	272.8	271.7	263.5	260.7	264.0
77.5°	216.3	225.6	229.1	233.4	240.4	233.4	229.1	225.6	216.3	218.1	219.8
80°	172.8	177.2	185.0	188.2	197.9	188.2	185.0	177.2	172.8	169.7	172.1
82.5°	126.5	130.4	137.1	143.1	148.7	143.1	137.1	130.4	126.5	125.0	125.2
85°	73.1	79.0	83.6	90.6	92.4	90.6	83.6	79.0	73.1	74.8	73.1
87.5°	25.6	27.5	31.4	34.2	34.3	34.2	31.4	27.5	25.6	26.2	23.7
90°	12.2	20.8	35.8	19.7	13.5	19.7	35.8	20.8	12.2	21.6	33.6
92.5°	16.0	28.2	50.7	26.2	18.1	26.2	50.7	28.2	16.0	28.0	54.0
95°	23.6	34.7	64.6	28.9	21.8	28.9	64.6	34.7	23.6	37.3	75.4
97.5°	36.6	43.1	73.0	30.8	26.6	30.8	73.0	43.1	36.6	45.7	86.6
100°	48.7	48.7	133.4	35.4	30.3	35.4	133.4	48.7	48.7	56.1	134.9
102.5°	73.8	95.3	309.1	71.0	36.7	71.0	309.1	95.3	73.8	105.3	286.3
105°	134.1	217.9	544.2	183.4	67.7	183.4	544.2	217.9	134.1	220.5	510.2
107.5°	254.0	406.5	701.1	361.7	157.8	361.7	701.1	406.5	254.0	390.5	672.9
110°	406.3	568.1	765.2	495.5	319.4	495.5	765.2	568.1	406.3	536.4	705.4



TEST NUMBER: P1433421
 CATALOG NUMBER: EHBR1-12-UNV-TASM-L935-UPL18

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	528.9	633.2	747.5	549.3	442.0	549.3	747.5	633.2	528.9	592.1	675.7
115°	574.6	623.8	667.7	547.5	490.3	547.5	667.7	623.8	574.6	578.1	603.3
117.5°	555.1	570.9	576.7	514.1	493.1	514.1	576.7	570.9	555.1	519.8	512.2
120°	501.2	494.8	485.8	464.8	465.2	464.8	485.8	494.8	501.2	453.9	427.7
122.5°	433.6	419.6	410.6	414.8	427.2	414.8	410.6	419.6	433.6	386.2	366.5
125°	367.6	353.7	357.8	372.0	384.6	372.0	357.8	353.7	367.6	327.9	323.0
127.5°	312.0	305.6	319.7	335.9	346.5	335.9	319.7	305.6	312.0	287.0	292.4
130°	272.4	274.0	292.7	306.4	313.0	306.4	292.7	274.0	272.4	260.3	273.1
132.5°	247.4	254.7	272.5	284.3	288.2	284.3	272.5	254.7	247.4	243.9	259.5
135°	231.8	242.6	258.8	266.5	267.7	266.5	258.8	242.6	231.8	233.0	247.4
137.5°	222.8	233.5	245.8	251.8	250.1	251.8	245.8	233.5	222.8	225.8	236.7
140°	217.4	228.1	233.7	240.6	239.2	240.6	233.7	228.1	217.4	219.2	227.7
142.5°	212.0	221.9	224.7	229.7	228.0	229.7	224.7	221.9	212.0	213.9	219.4
145°	209.5	216.7	214.6	221.3	218.9	221.3	214.6	216.7	209.5	210.2	213.2
147.5°	204.7	210.2	207.4	213.2	210.7	213.2	207.4	210.2	204.7	204.7	205.9
150°	199.4	203.1	199.2	205.9	205.3	205.9	199.2	203.1	199.4	198.5	199.6
152.5°	192.1	195.9	192.1	199.8	199.0	199.8	192.1	195.9	192.1	191.2	192.3
155°	186.0	187.9	186.0	193.6	193.8	193.6	186.0	187.9	186.0	185.8	186.2
157.5°	181.7	182.8	181.9	188.6	188.8	188.6	181.9	182.8	181.7	181.7	181.9
160°	177.8	179.6	178.9	184.6	184.9	184.6	178.9	179.6	177.8	178.5	178.7
162.5°	176.3	176.3	175.8	181.5	181.9	181.5	175.8	176.3	176.3	176.3	177.2
165°	174.1	175.1	173.6	177.6	178.9	177.6	173.6	175.1	174.1	174.9	174.9
167.5°	173.6	172.7	173.0	176.4	177.6	176.4	173.0	172.7	173.6	174.3	174.3
170°	171.9	172.1	171.5	174.8	176.1	174.8	171.5	172.1	171.9	172.8	173.6
172.5°	172.5	172.5	171.1	173.6	175.8	173.6	171.1	172.5	172.5	173.2	174.1
175°	172.8	172.0	171.5	173.0	175.3	173.0	171.5	172.0	172.8	172.7	172.7
177.5°	171.8	172.2	172.6	174.2	177.3	174.2	172.6	172.2	171.8	172.7	172.7
180°	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2	172.2



TEST NUMBER: P1433421

CATALOG NUMBER: EHBR1-12-UNV-TASM-L935-UPL18

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	9965.8	9965.8	9965.8	9965.8	9965.8	9965.8
2.5°	9676.3	9670.0	9676.3	9744.0	9832.0	9960.0
5°	9451.6	9416.4	9451.6	9526.5	9688.1	9931.8
7.5°	9189.7	9169.3	9189.7	9315.2	9519.4	9864.4
10°	8914.1	8868.0	8914.1	9055.8	9296.7	9761.4
12.5°	8574.3	8513.2	8574.3	8720.7	9024.5	9597.1
15°	8142.3	8088.7	8142.3	8304.7	8657.2	9354.2
17.5°	7678.7	7630.1	7678.7	7819.8	8207.9	9011.8
20°	7096.4	7058.2	7096.4	7296.0	7676.8	8570.6
22.5°	6485.5	6449.8	6485.5	6662.8	7059.2	8017.5
25°	5766.8	5747.3	5766.8	5964.8	6323.3	7370.5
27.5°	4990.1	4957.1	4990.1	5197.3	5563.4	6609.6
30°	4196.7	4141.9	4196.7	4382.0	4709.8	5764.3
32.5°	3420.6	3381.2	3420.6	3552.6	3895.2	4818.0
35°	2670.4	2631.0	2670.4	2789.9	3126.2	3944.9
37.5°	2080.8	2011.1	2080.8	2157.4	2430.5	3095.9
40°	1578.2	1567.0	1578.2	1674.6	1849.3	2408.7
42.5°	1284.7	1254.3	1284.7	1326.2	1457.1	1825.0
45°	1054.2	1042.2	1054.2	1085.5	1173.4	1426.6
47.5°	906.5	911.8	906.5	926.7	992.5	1161.8
50°	796.5	799.7	796.5	806.0	849.9	975.8
52.5°	715.4	712.6	715.4	716.3	743.6	838.4
55°	643.6	640.1	643.6	641.5	661.7	722.4
57.5°	580.8	583.4	580.8	578.0	588.8	634.4
60°	524.8	527.2	524.8	522.7	529.7	556.5
62.5°	477.5	479.0	477.5	477.3	476.0	496.5
65°	435.2	436.9	435.2	433.0	431.0	440.5
67.5°	394.9	394.9	394.9	390.9	387.7	397.2
70°	356.9	356.7	356.9	350.6	348.1	350.9
72.5°	311.3	315.9	311.3	306.7	306.4	306.9
75°	267.0	272.3	267.0	264.0	260.7	263.5
77.5°	222.2	230.2	222.2	219.8	218.1	216.3
80°	176.2	185.0	176.2	172.1	169.7	172.8
82.5°	130.2	136.8	130.2	125.2	125.0	126.5
85°	77.6	88.0	77.6	73.1	74.8	73.1
87.5°	24.8	31.8	24.8	23.7	26.2	25.6
90°	19.7	12.2	19.7	33.6	21.6	12.2
92.5°	29.9	17.9	29.9	54.0	28.0	16.0
95°	34.5	20.6	34.5	75.4	37.3	23.6
97.5°	38.2	26.4	38.2	86.6	45.7	36.6
100°	44.8	34.7	44.8	134.9	56.1	48.7
102.5°	94.9	58.9	94.9	286.3	105.3	73.8
105°	199.9	101.6	199.9	510.2	220.5	134.1
107.5°	357.8	175.9	357.8	672.9	390.5	254.0
110°	474.8	328.3	474.8	705.4	536.4	406.3



TEST NUMBER: P1433421

CATALOG NUMBER: EHBR1-12-UNV-TASM-L935-UPL18

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	510.2	443.5	510.2	675.7	592.1	528.9
115°	490.7	466.7	490.7	603.3	578.1	574.6
117.5°	447.9	450.9	447.9	512.2	519.8	555.1
120°	398.7	417.5	398.7	427.7	453.9	501.2
122.5°	353.4	375.7	353.4	366.5	386.2	433.6
125°	314.3	336.8	314.3	323.0	327.9	367.6
127.5°	287.4	302.4	287.4	292.4	287.0	312.0
130°	266.2	279.2	266.2	273.1	260.3	272.4
132.5°	251.5	259.9	251.5	259.5	243.9	247.4
135°	238.7	246.0	238.7	247.4	233.0	231.8
137.5°	227.8	234.1	227.8	236.7	225.8	222.8
140°	217.9	223.3	217.9	227.7	219.2	217.4
142.5°	207.9	211.6	207.9	219.4	213.9	212.0
145°	200.8	203.7	200.8	213.2	210.2	209.5
147.5°	194.8	196.6	194.8	205.9	204.7	204.7
150°	188.6	190.4	188.6	199.6	198.5	199.4
152.5°	182.3	184.3	182.3	192.3	191.2	192.1
155°	178.0	180.0	178.0	186.2	185.8	186.0
157.5°	175.6	176.8	175.6	181.9	181.7	181.7
160°	173.3	174.5	173.3	178.7	178.5	177.8
162.5°	171.0	172.1	171.0	177.2	176.3	176.3
165°	170.4	170.6	170.4	174.9	174.9	174.1
167.5°	169.7	170.6	169.7	174.3	174.3	173.6
170°	169.8	170.0	169.8	173.6	172.8	171.9
172.5°	170.2	170.4	170.2	174.1	173.2	172.5
175°	169.7	169.8	169.7	172.7	172.7	172.8
177.5°	170.8	170.9	170.8	172.7	172.7	171.8
180°	172.2	172.2	172.2	172.2	172.2	172.2



TEST NUMBER: P1433421
 CATALOG NUMBER: EHBR1-12-UNV-TASM-L935-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	13.49	14.51	14.08	15.08	15.71	12.81	13.83	13.39	14.40	15.03
	3H	15.04	15.95	15.63	16.53	17.20	14.65	15.56	15.25	16.14	16.82
	4H	15.67	16.52	16.29	17.11	17.80	15.43	16.28	16.05	16.88	17.57
	6H	16.15	16.93	16.78	17.54	18.24	16.07	16.86	16.70	17.46	18.16
	8H	16.30	17.04	16.94	17.66	18.37	16.29	17.03	16.94	17.66	18.36
	12H	16.37	17.07	17.01	17.69	18.42	16.42	17.13	17.06	17.74	18.47
4H	2H	13.90	14.75	14.52	15.34	16.03	13.38	14.23	14.00	14.82	15.51
	3H	15.69	16.40	16.32	17.03	17.74	15.43	16.14	16.06	16.77	17.48
	4H	16.47	17.10	17.11	17.74	18.48	16.34	16.97	16.98	17.62	18.35
	6H	17.08	17.63	17.75	18.29	19.05	17.11	17.65	17.78	18.32	19.07
	8H	17.27	17.78	17.95	18.45	19.21	17.38	17.89	18.05	18.55	19.31
	12H	17.38	17.83	18.07	18.52	19.28	17.54	17.99	18.23	18.69	19.45
8H	4H	16.71	17.22	17.39	17.89	18.65	16.61	17.13	17.29	17.79	18.55
	6H	17.45	17.87	18.16	18.58	19.34	17.52	17.93	18.22	18.64	19.41
	8H	17.72	18.09	18.44	18.81	19.59	17.87	18.24	18.59	18.96	19.74
	12H	17.89	18.22	18.61	18.92	19.76	18.12	18.44	18.83	19.14	19.99
12H	4H	16.72	17.17	17.41	17.86	18.63	16.62	17.07	17.31	17.77	18.53
	6H	17.50	17.87	18.22	18.58	19.36	17.56	17.93	18.28	18.65	19.43
	8H	17.81	18.13	18.53	18.83	19.68	17.96	18.29	18.68	18.99	19.84

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

REPORT NUMBER: SP1-2506-472-6

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)