

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: P1433160

Luminaire Tested: EHBR1-24-UNV-TASM-L930-UPL40

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433160
REPORT IS A COMBINATION OF REPORTS P1431714 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-24-UNV-TASM-L930-UPL40
Description: Elevate Round Highbay at, 24000 lumens, 3000K 90CRI LEDs with TASM lens
Light Source: -
Ballast/Driver: -

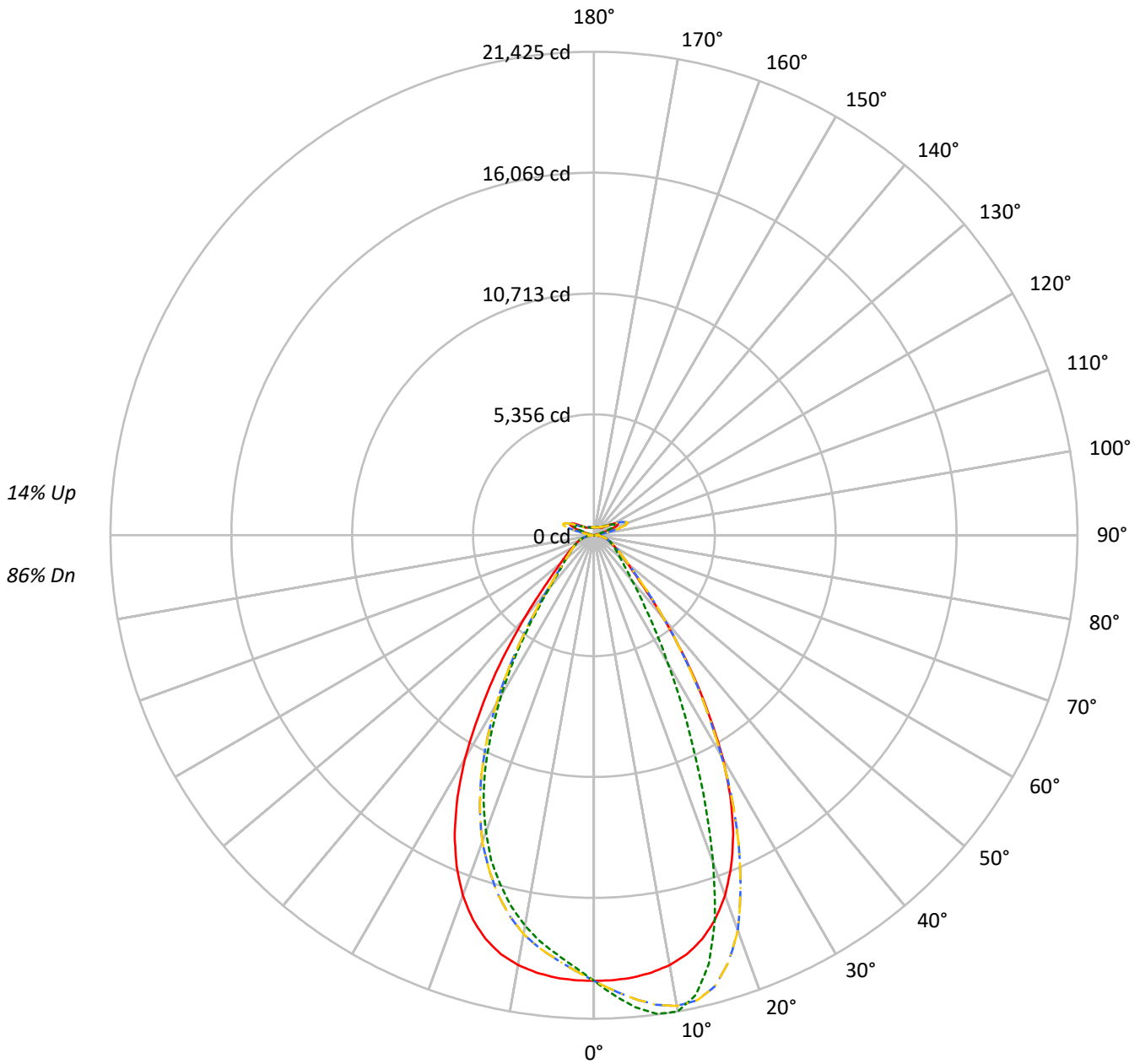
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 25534.6 lumens
Efficiency: N/A
Efficacy: 160.7 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): 158.9
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	116	116	116	116	112	112	112	112	104	104	104	96	96	96	90	90	90	86			86
1	108	105	102	99	105	101	99	96	95	93	91	89	87	86	83	82	81	78			78
2	101	95	90	86	98	92	88	84	87	83	80	82	79	76	77	75	73	70			70
3	95	87	81	76	92	85	79	75	80	75	72	76	72	69	72	69	66	64			64
4	89	80	73	68	86	78	72	67	74	69	65	70	66	63	67	63	61	58			58
5	84	74	67	62	81	72	66	61	69	63	59	65	61	57	62	59	56	54			54
6	79	68	61	56	76	67	60	56	64	58	54	61	56	53	58	54	51	49			49
7	74	64	57	52	72	62	56	51	60	54	50	57	52	49	55	51	48	46			46
8	70	59	52	48	68	58	52	47	56	50	46	54	49	45	52	47	44	43			43
9	66	55	49	44	64	54	48	44	52	47	43	51	46	42	49	44	41	40			40
10	63	52	46	41	61	51	45	41	49	44	40	48	43	40	46	42	39	37			37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	92725	92725	92725	92725
5°	92160	98318	92160	87378
10°	91028	100842	91028	82696
15°	88340	93714	88340	76388
20°	82620	75146	82620	68041
25°	73125	52065	73125	57021
30°	59375	33872	59375	42663
35°	42586	21936	42586	28402
40°	27533	15120	27533	17912
45°	17470	11712	17470	12762
50°	12973	9952	12973	10630
55°	10591	9065	10591	9384
60°	9172	8636	9172	8689
65°	8361	8328	8361	8294
70°	7925	8160	7925	8055
75°	7410	7894	7410	7659
80°	6511	7453	6511	6967
85°	4213	5322	4213	5074

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 24561 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1877.5	7.4
10°-20°	5107.7	20.0
20°-30°	5990.3	23.5
30°-40°	4165.9	16.3
40°-50°	2070.3	8.1
50°-60°	1238.2	4.8
60°-70°	871.5	3.4
70°-80°	561.4	2.2
80°-90°	184.4	0.7
90°-100°	92.0	0.4
100°-110°	603.8	2.4
110°-120°	1116.0	4.4
120°-130°	662.8	2.6
130°-140°	400.2	1.6
140°-150°	276.3	1.1
150°-160°	179.7	0.7
160°-170°	102.6	0.4
170°-180°	34.0	0.1
0°-30°	12975.5	50.8
0°-40°	17141.4	67.1
0°-60°	20449.9	80.1
0°-90°	22067.2	86.4
90°-120°	1811.8	7.1
90°-150°	3151.1	12.3
90°-180°	3467.0	13.6
0°-180°	25534.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	19745	19745	19745	19745	19745	
5°	19678	20992	19678	18657	19678	1867
15°	18533	19661	18533	16026	18533	5179
25°	14603	10397	14603	11387	14603	6611
35°	7816	4026	7816	5213	7816	4879
45°	2826	1895	2826	2065	2826	2313
55°	1431	1225	1431	1268	1431	1309
65°	873	869	873	866	873	876
75°	522	556	522	540	522	548
85°	145	183	145	174	145	161
90°	25	28	25	25	25	18
95°	49	45	49	43	49	52
105°	277	140	277	210	277	374
115°	1188	1013	1188	965	1188	1083
125°	760	795	760	696	760	700
135°	479	553	479	508	479	380
145°	433	452	433	421	433	271
155°	384	400	384	372	384	179
165°	360	369	360	352	360	102
175°	357	362	357	351	357	34
180°	356	356	356	356	356	



TEST NUMBER: P1433160
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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1
2.5°	19733.6	19988.7	20195.3	20331.5	20398.9	20331.5	20195.3	19988.7	19733.6	19480.0	19305.6
5°	19677.7	20188.6	20621.4	20904.7	20992.4	20904.7	20621.4	20188.6	19677.7	19194.9	18874.6
7.5°	19544.0	20340.1	20983.1	21313.8	21394.5	21313.8	20983.1	20340.1	19544.0	18860.5	18455.9
10°	19340.1	20435.6	21178.7	21415.6	21425.2	21415.6	21178.7	20435.6	19340.1	18419.2	17941.9
12.5°	19014.5	20401.5	21113.2	21035.4	20858.7	21035.4	21113.2	20401.5	19014.5	17880.1	17278.1
15°	18533.2	20199.7	20698.1	20065.4	19660.7	20065.4	20698.1	20199.7	18533.2	17152.2	16453.9
17.5°	17855.0	19822.1	19831.7	18579.9	17816.5	18579.9	19831.7	19822.1	17855.0	16262.1	15493.1
20°	16980.8	19216.4	18638.7	16349.1	15444.6	16349.1	18638.7	19216.4	16980.8	15209.9	14455.3
22.5°	15884.8	18399.5	16977.5	14105.1	12871.0	14105.1	16977.5	18399.5	15884.8	13986.2	13200.9
25°	14603.0	17398.8	15190.3	11659.9	10397.4	11659.9	15190.3	17398.8	14603.0	12528.2	11818.0
27.5°	13095.4	16130.3	13287.2	9528.0	8363.2	9528.0	13287.2	16130.3	13095.4	11022.7	10297.4
30°	11420.8	14504.2	11306.7	7587.9	6515.3	7587.9	11306.7	14504.2	11420.8	9331.4	8682.0
32.5°	9545.8	12910.2	9404.7	6079.9	5171.3	6079.9	9404.7	12910.2	9545.8	7717.5	7038.8
35°	7816.0	10916.1	7689.7	4777.3	4026.1	4777.3	7689.7	10916.1	7816.0	6194.0	5527.5
37.5°	6133.9	9031.9	6129.9	3846.9	3265.6	3846.9	6129.9	9031.9	6133.9	4815.5	4274.5
40°	4772.1	7062.1	4802.9	3070.9	2620.7	3070.9	4802.9	7062.1	4772.1	3664.0	3317.8
42.5°	3615.9	5400.1	3775.0	2520.3	2226.0	2520.3	3775.0	5400.1	3615.9	2886.8	2627.7
45°	2826.5	3973.9	2947.9	2126.3	1894.9	2126.3	2947.9	3973.9	2826.5	2324.8	2150.8
47.5°	2301.8	3071.2	2389.2	1823.9	1661.7	1823.9	2389.2	3071.2	2301.8	1966.4	1836.1
50°	1933.4	2356.6	1983.8	1592.1	1483.2	1592.1	1983.8	2356.6	1933.4	1683.9	1596.9
52.5°	1660.9	1922.0	1689.4	1418.8	1345.5	1418.8	1689.4	1922.0	1660.9	1473.2	1419.1
55°	1431.3	1615.8	1469.1	1275.8	1225.1	1275.8	1469.1	1615.8	1431.3	1311.0	1271.0
57.5°	1257.0	1370.7	1275.8	1154.0	1120.3	1154.0	1275.8	1370.7	1257.0	1166.7	1145.2
60°	1102.6	1187.0	1126.0	1047.8	1038.2	1047.8	1126.0	1187.0	1102.6	1049.7	1035.6
62.5°	983.7	1037.1	995.6	952.3	943.8	952.3	995.6	1037.1	983.7	943.0	945.6
65°	872.7	922.3	889.7	866.4	869.3	866.4	889.7	922.3	872.7	853.8	857.9
67.5°	786.8	812.7	798.6	785.3	788.7	785.3	798.6	812.7	786.8	768.3	774.6
70°	695.4	723.1	708.6	710.5	716.0	710.5	708.6	723.1	695.4	689.7	694.6
72.5°	607.9	629.4	624.6	629.1	634.9	629.1	624.6	629.4	607.9	607.2	607.6
75°	522.0	538.3	540.6	546.9	556.1	546.9	540.6	538.3	522.0	516.5	523.2
77.5°	428.4	446.9	453.9	462.4	476.1	462.4	453.9	446.9	428.4	432.1	435.4
80°	342.5	351.0	366.5	372.9	392.1	372.9	366.5	351.0	342.5	336.2	341.0
82.5°	250.7	258.4	271.8	283.6	294.7	283.6	271.8	258.4	250.7	247.7	248.1
85°	144.8	156.6	165.5	179.6	182.9	179.6	165.5	156.6	144.8	148.1	144.8
87.5°	50.7	54.4	62.2	67.7	68.1	67.7	62.2	54.4	50.7	51.9	47.1
90°	25.3	43.0	74.1	40.6	27.9	40.6	74.1	43.0	25.3	44.6	69.5
92.5°	33.0	58.3	104.8	54.1	37.5	54.1	104.8	58.3	33.0	57.9	111.7
95°	48.7	71.7	133.6	59.8	45.2	59.8	133.6	71.7	48.7	77.2	155.9
97.5°	75.6	89.0	150.9	63.7	54.8	63.7	150.9	89.0	75.6	94.5	178.9
100°	100.6	100.6	275.6	73.3	62.5	73.3	275.6	100.6	100.6	115.9	278.8
102.5°	152.4	196.9	639.0	146.6	75.9	146.6	639.0	196.9	152.4	217.7	591.8
105°	277.2	450.4	1124.9	378.9	139.6	378.9	1124.9	450.4	277.2	455.8	1054.6
107.5°	525.0	840.3	1449.4	747.7	325.9	747.7	1449.4	840.3	525.0	807.2	1391.0
110°	839.9	1174.3	1581.9	1024.2	660.1	1024.2	1581.9	1174.3	839.9	1108.7	1458.2



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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°	1093.3	1308.7	1545.4	1135.6	913.5	1135.6	1545.4	1308.7	1093.3	1223.9	1396.8
115°	1187.8	1289.6	1380.3	1131.7	1013.3	1131.7	1380.3	1289.6	1187.8	1195.1	1247.0
117.5°	1147.4	1180.1	1192.1	1062.6	1019.1	1062.6	1192.1	1180.1	1147.4	1074.5	1058.8
120°	1036.1	1022.7	1004.2	960.8	961.5	960.8	1004.2	1022.7	1036.1	938.2	884.0
122.5°	896.4	867.5	848.7	857.5	882.8	857.5	848.7	867.5	896.4	798.5	757.6
125°	760.1	731.2	739.6	769.1	794.9	769.1	739.6	731.2	760.1	677.8	667.8
127.5°	645.2	631.7	660.9	694.2	716.1	694.2	660.9	631.7	645.2	593.3	604.5
130°	562.9	566.4	605.2	633.2	647.1	633.2	605.2	566.4	562.9	538.0	564.5
132.5°	511.4	526.5	563.3	587.5	595.5	587.5	563.3	526.5	511.4	504.1	536.4
135°	479.2	501.5	534.9	550.5	553.3	550.5	534.9	501.5	479.2	481.5	511.4
137.5°	460.4	482.6	507.9	520.3	516.8	520.3	507.9	482.6	460.4	466.5	489.1
140°	449.2	471.5	483.0	497.3	494.1	497.3	483.0	471.5	449.2	453.1	470.3
142.5°	438.1	458.4	464.2	474.5	471.1	474.5	464.2	458.4	438.1	441.9	453.4
145°	432.6	447.7	443.5	457.2	452.3	457.2	443.5	447.7	432.6	434.3	440.3
147.5°	423.1	434.3	428.5	440.3	435.3	440.3	428.5	434.3	423.1	423.1	425.3
150°	411.9	419.5	411.5	425.3	424.2	425.3	411.5	419.5	411.9	410.0	412.2
152.5°	396.9	404.6	396.9	412.6	411.1	412.6	396.9	404.6	396.9	395.0	397.3
155°	384.2	388.0	384.2	399.9	400.3	399.9	384.2	388.0	384.2	383.8	384.6
157.5°	375.3	377.7	375.7	389.5	389.9	389.5	375.7	377.7	375.3	375.3	375.7
160°	367.2	371.1	369.6	381.4	381.8	381.4	369.6	371.1	367.2	368.8	369.1
162.5°	364.1	364.1	363.0	374.8	375.5	374.8	363.0	364.1	364.1	364.1	366.1
165°	359.5	361.4	358.2	366.7	369.4	366.7	358.2	361.4	359.5	361.0	361.0
167.5°	358.2	356.4	357.2	363.9	366.7	363.9	357.2	356.4	358.2	359.8	359.8
170°	354.9	355.2	354.0	360.9	363.6	360.9	354.0	355.2	354.9	356.8	358.2
172.5°	355.9	355.9	353.2	358.1	362.7	358.1	353.2	355.9	355.9	357.5	359.4
175°	356.6	355.2	354.0	357.0	361.6	357.0	354.0	355.2	356.6	356.3	356.3
177.5°	354.8	355.6	356.3	359.3	365.8	359.3	356.3	355.6	354.8	356.3	356.3
180°	355.6	355.6	355.6	355.6	355.6	355.6	355.6	355.6	355.6	355.6	355.6



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CATALOG NUMBER: EHBR1-24-UNV-TASM-L930-UPL40

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	19745.1	19745.1	19745.1	19745.1	19745.1	19745.1
2.5°	19171.5	19159.0	19171.5	19305.6	19480.0	19733.6
5°	18726.1	18656.6	18726.1	18874.6	19194.9	19677.7
7.5°	18207.4	18167.0	18207.4	18455.9	18860.5	19544.0
10°	17661.3	17569.8	17661.3	17941.9	18419.2	19340.1
12.5°	16988.2	16867.1	16988.2	17278.1	17880.1	19014.5
15°	16132.1	16025.9	16132.1	16453.9	17152.2	18533.2
17.5°	15213.5	15117.3	15213.5	15493.1	16262.1	17855.0
20°	14059.9	13984.3	14059.9	14455.3	15209.9	16980.8
22.5°	12849.5	12778.8	12849.5	13200.9	13986.2	15884.8
25°	11425.6	11387.1	11425.6	11818.0	12528.2	14603.0
27.5°	9886.8	9821.3	9886.8	10297.4	11022.7	13095.4
30°	8314.7	8206.2	8314.7	8682.0	9331.4	11420.8
32.5°	6777.0	6699.0	6777.0	7038.8	7717.5	9545.8
35°	5290.9	5212.7	5290.9	5527.5	6194.0	7816.0
37.5°	4122.8	3984.6	4122.8	4274.5	4815.5	6133.9
40°	3126.7	3104.6	3126.7	3317.8	3664.0	4772.1
42.5°	2545.5	2485.1	2545.5	2627.7	2886.8	3615.9
45°	2088.6	2064.9	2088.6	2150.8	2324.8	2826.5
47.5°	1796.1	1806.4	1796.1	1836.1	1966.4	2301.8
50°	1578.0	1584.3	1578.0	1596.9	1683.9	1933.4
52.5°	1417.4	1411.7	1417.4	1419.1	1473.2	1660.9
55°	1275.1	1268.1	1275.1	1271.0	1311.0	1431.3
57.5°	1150.7	1155.9	1150.7	1145.2	1166.7	1257.0
60°	1039.7	1044.5	1039.7	1035.6	1049.7	1102.6
62.5°	945.9	949.0	945.9	945.6	943.0	983.7
65°	862.4	865.7	862.4	857.9	853.8	872.7
67.5°	782.3	782.3	782.3	774.6	768.3	786.8
70°	707.2	706.8	707.2	694.6	689.7	695.4
72.5°	616.8	625.8	616.8	607.6	607.2	607.9
75°	529.1	539.5	529.1	523.2	516.5	522.0
77.5°	440.2	456.2	440.2	435.4	432.1	428.4
80°	349.1	366.5	349.1	341.0	336.2	342.5
82.5°	258.1	271.0	258.1	248.1	247.7	250.7
85°	153.6	174.4	153.6	144.8	148.1	144.8
87.5°	49.3	62.9	49.3	47.1	51.9	50.7
90°	40.7	25.3	40.7	69.5	44.6	25.3
92.5°	61.8	36.8	61.8	111.7	57.9	33.0
95°	71.4	42.6	71.4	155.9	77.2	48.7
97.5°	79.0	54.4	79.0	178.9	94.5	75.6
100°	92.5	71.7	92.5	278.8	115.9	100.6
102.5°	196.2	121.7	196.2	591.8	217.7	152.4
105°	413.2	210.0	413.2	1054.6	455.8	277.2
107.5°	739.6	363.7	739.6	1391.0	807.2	525.0
110°	981.6	678.6	981.6	1458.2	1108.7	839.9



TEST NUMBER: P1433160
 CATALOG NUMBER: EHBR1-24-UNV-TASM-L930-UPL40

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	1054.6	916.7	1054.6	1396.8	1223.9	1093.3
115°	1014.3	964.7	1014.3	1247.0	1195.1	1187.8
117.5°	925.9	932.0	925.9	1058.8	1074.5	1147.4
120°	824.1	862.9	824.1	884.0	938.2	1036.1
122.5°	730.4	776.5	730.4	757.6	798.5	896.4
125°	649.7	696.2	649.7	667.8	677.8	760.1
127.5°	594.0	625.1	594.0	604.5	593.3	645.2
130°	550.3	577.2	550.3	564.5	538.0	562.9
132.5°	520.0	537.3	520.0	536.4	504.1	511.4
135°	493.4	508.5	493.4	511.4	481.5	479.2
137.5°	470.8	483.9	470.8	489.1	466.5	460.4
140°	450.4	461.5	450.4	470.3	453.1	449.2
142.5°	429.6	437.3	429.6	453.4	441.9	438.1
145°	415.0	420.8	415.0	440.3	434.3	432.6
147.5°	402.3	406.2	402.3	425.3	423.1	423.1
150°	389.6	393.4	389.6	412.2	410.0	411.9
152.5°	376.5	380.8	376.5	397.3	395.0	396.9
155°	367.7	371.9	367.7	384.6	383.8	384.2
157.5°	362.6	365.3	362.6	375.7	375.3	375.3
160°	358.1	360.3	358.1	369.1	368.8	367.2
162.5°	353.0	355.3	353.0	366.1	364.1	364.1
165°	351.8	352.2	351.8	361.0	361.0	359.5
167.5°	350.2	352.2	350.2	359.8	359.8	358.2
170°	350.6	351.0	350.6	358.2	356.8	354.9
172.5°	351.4	351.7	351.4	359.4	357.5	355.9
175°	350.2	350.6	350.2	356.3	356.3	356.6
177.5°	352.4	352.8	352.4	356.3	356.3	354.8
180°	355.6	355.6	355.6	355.6	355.6	355.6



TEST NUMBER: P1433160
 CATALOG NUMBER: EHBR1-24-UNV-TASM-L930-UPL40

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	15.83	16.85	16.42	17.42	18.06	15.15	16.16	15.74	16.74	17.38
	3H	17.37	18.28	17.98	18.87	19.55	16.99	17.90	17.60	18.48	19.17
	4H	18.01	18.85	18.63	19.45	20.15	17.77	18.62	18.39	19.22	19.92
	6H	18.48	19.26	19.12	19.88	20.59	18.41	19.19	19.05	19.80	20.51
	8H	18.63	19.37	19.28	20.00	20.72	18.63	19.37	19.28	20.00	20.71
	12H	18.70	19.41	19.35	20.03	20.77	18.75	19.46	19.41	20.08	20.82
4H	2H	16.24	17.08	16.86	17.68	18.38	15.71	16.56	16.34	17.16	17.86
	3H	18.03	18.73	18.67	19.37	20.09	17.77	18.47	18.40	19.11	19.83
	4H	18.80	19.43	19.46	20.08	20.83	18.67	19.31	19.33	19.96	20.70
	6H	19.41	19.96	20.09	20.63	21.40	19.44	19.99	20.12	20.66	21.42
	8H	19.61	20.12	20.29	20.79	21.56	19.71	20.22	20.39	20.89	21.66
	12H	19.71	20.16	20.41	20.86	21.63	19.88	20.33	20.57	21.03	21.80
8H	4H	19.05	19.56	19.73	20.23	21.00	18.95	19.46	19.63	20.13	20.90
	6H	19.79	20.20	20.50	20.92	21.69	19.85	20.27	20.56	20.98	21.76
	8H	20.06	20.43	20.79	21.15	21.94	20.21	20.58	20.93	21.30	22.09
	12H	20.23	20.55	20.95	21.26	22.11	20.45	20.77	21.17	21.48	22.34
12H	4H	19.05	19.50	19.75	20.20	20.98	18.96	19.41	19.65	20.11	20.88
	6H	19.83	20.20	20.56	20.92	21.71	19.90	20.27	20.63	20.99	21.78
	8H	20.15	20.47	20.87	21.18	22.03	20.30	20.62	21.02	21.33	22.19

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-5

Test Date: 08/01/2025

Luminaire Tested: EHBR-60-L930-N

Data in this report applies to families of products including EHBR-60-L930-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-5
 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-L930-N**
 Description: Elevate Round Highbay at, 60000 lumens, 3000K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 2996
 CIE u': 0.2519
 CIE v': 0.5169
 Duv: -0.0033
 CIE x: 0.4325
 CIE y: 0.3945
 CIE z: 0.1730
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 584
 Purity: 48.21818
 Rf: 91.3
 Rg: 102

CRI (Ra):	94.4		
R1:	96.8	R9:	61.4
R2:	98.1	R10:	94.4
R3:	97.8	R11:	95.7
R4:	95.6	R12:	88.5
R5:	96.9	R13:	97.3
R6:	95.7	R14:	97.8
R7:	90.9	R15:	92.3
R8:	83.0		



Test Conditions

Stabilization Time: 40M
 Operation Time: 1H 40M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-5

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: SP1-2506-472-5

CIE 1931 Chromaticity Diagram



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



CCT = 2996K
 CIE x = 0.4325
 CIE y = 0.3945
 Duv = -0.0033

Point lies inside the ANSI 3000K 7-step quadrangle

REPORT NUMBER: SP1-2506-472-5

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	101	NR	620	317	NR	750	7	NR	880	0	NR
365	0	NR	495	121	NR	625	320	NR	755	6	NR	885	0	NR
370	0	NR	500	141	NR	630	1000	NR	760	5	NR	890	0	NR
375	0	NR	505	158	NR	635	651	NR	765	4	NR	895	0	NR
380	0	NR	510	171	NR	640	207	NR	770	4	NR	900	0	NR
385	0	NR	515	182	NR	645	201	NR	775	3	NR	905	0	NR
390	0	NR	520	189	NR	650	174	NR	780	3	NR	910	0	NR
395	1	NR	525	194	NR	655	146	NR	785	2	NR	915	0	NR
400	1	NR	530	199	NR	660	124	NR	790	2	NR	920	0	NR
405	3	NR	535	205	NR	665	105	NR	795	2	NR	925	0	NR
410	4	NR	540	210	NR	670	96	NR	800	1	NR	930	0	NR
415	7	NR	545	216	NR	675	79	NR	805	1	NR	935	0	NR
420	13	NR	550	222	NR	680	67	NR	810	1	NR	940	0	NR
425	22	NR	555	230	NR	685	58	NR	815	1	NR	945	0	NR
430	37	NR	560	240	NR	690	49	NR	820	1	NR	950	0	NR
435	60	NR	565	248	NR	695	42	NR	825	1	NR	955	0	NR
440	101	NR	570	258	NR	700	36	NR	830	1	NR	960	0	NR
445	172	NR	575	268	NR	705	30	NR	835	1	NR	965	0	NR
450	223	NR	580	278	NR	710	26	NR	840	1	NR	970	0	NR
455	167	NR	585	287	NR	715	22	NR	845	0	NR	975	0	NR
460	126	NR	590	295	NR	720	19	NR	850	0	NR	980	0	NR
465	111	NR	595	298	NR	725	16	NR	855	0	NR	985	0	NR
470	86	NR	600	303	NR	730	14	NR	860	0	NR	990	0	NR
475	74	NR	605	307	NR	735	12	NR	865	0	NR	995	0	NR
480	77	NR	610	341	NR	740	10	NR	870	0	NR	1000	0	NR
485	86	NR	615	368	NR	745	8	NR	875	0	NR			

REPORT NUMBER: SP1-2506-472-5

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.44

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	101	NR	620	317	NR	750	7	NR	880	0	NR
365	0	NR	495	121	NR	625	320	NR	755	6	NR	885	0	NR
370	0	NR	500	141	NR	630	1000	NR	760	5	NR	890	0	NR
375	0	NR	505	158	NR	635	651	NR	765	4	NR	895	0	NR
380	0	NR	510	171	NR	640	207	NR	770	4	NR	900	0	NR
385	0	NR	515	182	NR	645	201	NR	775	3	NR	905	0	NR
390	0	NR	520	189	NR	650	174	NR	780	3	NR	910	0	NR
395	1	NR	525	194	NR	655	146	NR	785	2	NR	915	0	NR
400	1	NR	530	199	NR	660	124	NR	790	2	NR	920	0	NR
405	3	NR	535	205	NR	665	105	NR	795	2	NR	925	0	NR
410	4	NR	540	210	NR	670	96	NR	800	1	NR	930	0	NR
415	7	NR	545	216	NR	675	79	NR	805	1	NR	935	0	NR
420	13	NR	550	222	NR	680	67	NR	810	1	NR	940	0	NR
425	22	NR	555	230	NR	685	58	NR	815	1	NR	945	0	NR
430	37	NR	560	240	NR	690	49	NR	820	1	NR	950	0	NR
435	60	NR	565	248	NR	695	42	NR	825	1	NR	955	0	NR
440	101	NR	570	258	NR	700	36	NR	830	1	NR	960	0	NR
445	172	NR	575	268	NR	705	30	NR	835	1	NR	965	0	NR
450	223	NR	580	278	NR	710	26	NR	840	1	NR	970	0	NR
455	167	NR	585	287	NR	715	22	NR	845	0	NR	975	0	NR
460	126	NR	590	295	NR	720	19	NR	850	0	NR	980	0	NR
465	111	NR	595	298	NR	725	16	NR	855	0	NR	985	0	NR
470	86	NR	600	303	NR	730	14	NR	860	0	NR	990	0	NR
475	74	NR	605	307	NR	735	12	NR	865	0	NR	995	0	NR
480	77	NR	610	341	NR	740	10	NR	870	0	NR	1000	0	NR
485	86	NR	615	368	NR	745	8	NR	875	0	NR			

REPORT NUMBER: SP1-2506-472-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.85

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	101	NR	620	317	NR	750	7	NR	880	0	NR
365	0	NR	495	121	NR	625	320	NR	755	6	NR	885	0	NR
370	0	NR	500	141	NR	630	1000	NR	760	5	NR	890	0	NR
375	0	NR	505	158	NR	635	651	NR	765	4	NR	895	0	NR
380	0	NR	510	171	NR	640	207	NR	770	4	NR	900	0	NR
385	0	NR	515	182	NR	645	201	NR	775	3	NR	905	0	NR
390	0	NR	520	189	NR	650	174	NR	780	3	NR	910	0	NR
395	1	NR	525	194	NR	655	146	NR	785	2	NR	915	0	NR
400	1	NR	530	199	NR	660	124	NR	790	2	NR	920	0	NR
405	3	NR	535	205	NR	665	105	NR	795	2	NR	925	0	NR
410	4	NR	540	210	NR	670	96	NR	800	1	NR	930	0	NR
415	7	NR	545	216	NR	675	79	NR	805	1	NR	935	0	NR
420	13	NR	550	222	NR	680	67	NR	810	1	NR	940	0	NR
425	22	NR	555	230	NR	685	58	NR	815	1	NR	945	0	NR
430	37	NR	560	240	NR	690	49	NR	820	1	NR	950	0	NR
435	60	NR	565	248	NR	695	42	NR	825	1	NR	955	0	NR
440	101	NR	570	258	NR	700	36	NR	830	1	NR	960	0	NR
445	172	NR	575	268	NR	705	30	NR	835	1	NR	965	0	NR
450	223	NR	580	278	NR	710	26	NR	840	1	NR	970	0	NR
455	167	NR	585	287	NR	715	22	NR	845	0	NR	975	0	NR
460	126	NR	590	295	NR	720	19	NR	850	0	NR	980	0	NR
465	111	NR	595	298	NR	725	16	NR	855	0	NR	985	0	NR
470	86	NR	600	303	NR	730	14	NR	860	0	NR	990	0	NR
475	74	NR	605	307	NR	735	12	NR	865	0	NR	995	0	NR
480	77	NR	610	341	NR	740	10	NR	870	0	NR	1000	0	NR
485	86	NR	615	368	NR	745	8	NR	875	0	NR			

Summary

$R_f = 91.3$
 $R_g = 102$
 $CIE R_a = 94.4$
 $R_9 = 61.4$



Color Vector Graphics



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

CES01 = 86	CES26 = 91	CES51 = 96	CES76 = 89
CES02 = 63	CES27 = 96	CES52 = 95	CES77 = 85
CES03 = 32	CES28 = 96	CES53 = 93	CES78 = 86
CES04 = 70	CES29 = 90	CES54 = 98	CES79 = 89
CES05 = 51	CES30 = 96	CES55 = 98	CES80 = 91
CES06 = 51	CES31 = 90	CES56 = 95	CES81 = 72
CES07 = 44	CES32 = 84	CES57 = 95	CES82 = 95
CES08 = 42	CES33 = 91	CES58 = 95	CES83 = 93
CES09 = 29	CES34 = 92	CES59 = 99	CES84 = 96
CES10 = 76	CES35 = 96	CES60 = 96	CES85 = 80
CES11 = 59	CES36 = 90	CES61 = 96	CES86 = 77
CES12 = 65	CES37 = 94	CES62 = 95	CES87 = 91
CES13 = 44	CES38 = 99	CES63 = 94	CES88 = 96
CES14 = 74	CES39 = 97	CES64 = 96	CES89 = 82
CES15 = 72	CES40 = 94	CES65 = 92	CES90 = 97
CES16 = 48	CES41 = 94	CES66 = 95	CES91 = 82
CES17 = 50	CES42 = 91	CES67 = 94	CES92 = 78
CES18 = 57	CES43 = 88	CES68 = 93	CES93 = 87
CES19 = 72	CES44 = 99	CES69 = 94	CES94 = 73
CES20 = 67	CES45 = 93	CES70 = 90	CES95 = 85
CES21 = 86	CES46 = 93	CES71 = 90	CES96 = 92
CES22 = 79	CES47 = 86	CES72 = 96	CES97 = 93
CES23 = 92	CES48 = 95	CES73 = 85	CES98 = 94
CES24 = 91	CES49 = 91	CES74 = 90	CES99 = 93
CES25 = 72	CES50 = 96	CES75 = 90	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)