

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: P1433454

Luminaire Tested: EHBR1-18-UNV-TASM-L935-UPL24

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433454
REPORT IS A COMBINATION OF REPORTS P1431679 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-18-UNV-TASM-L935-UPL24
Description: Elevate Round Highbay at, 18000 lumens, 3500K 90CRI LEDs with TASM lens
Light Source: -
Ballast/Driver: -

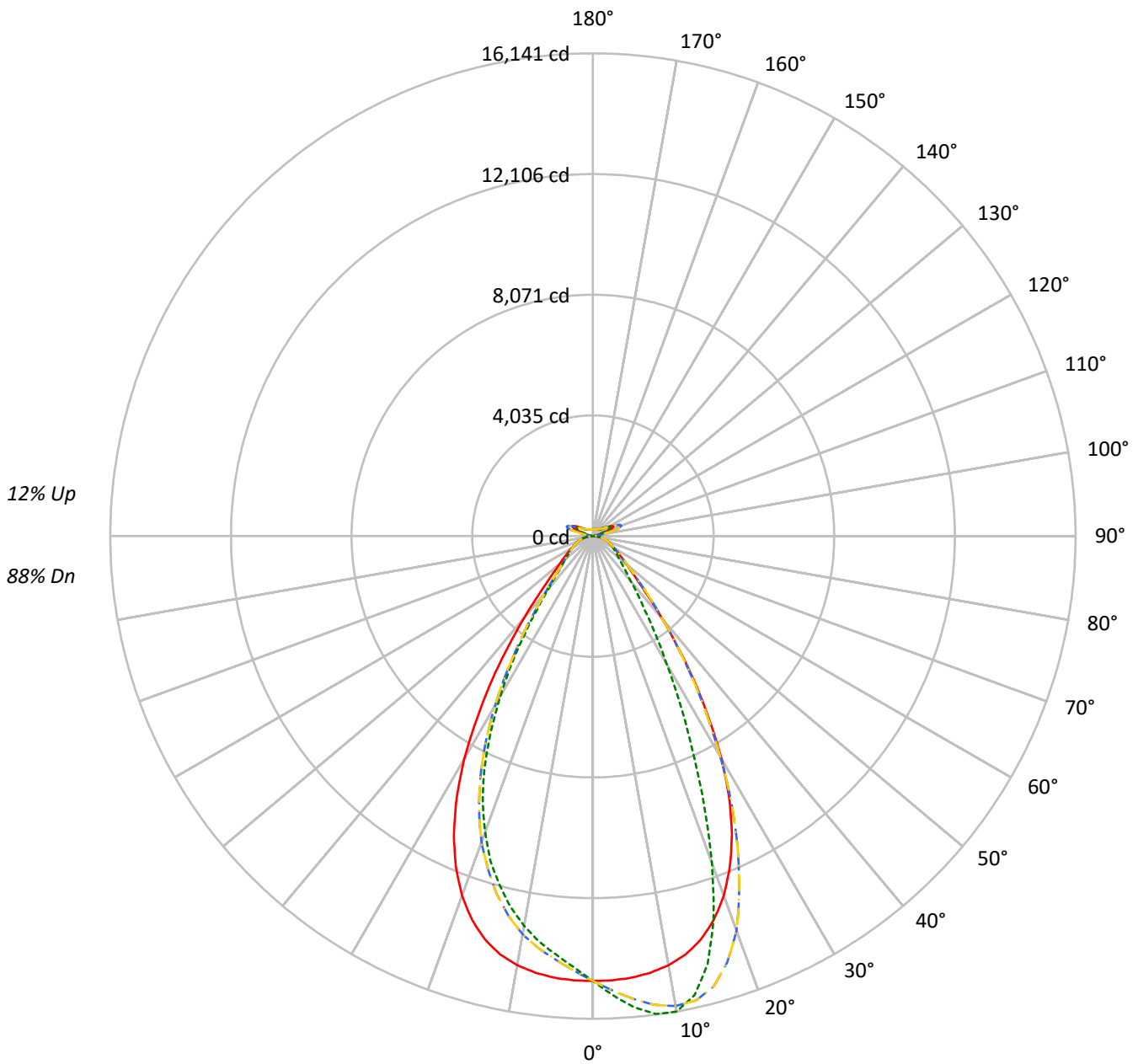
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18838.1 lumens
Efficiency: N/A
Efficacy: 169.4 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): 111.2
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

TEST NUMBER: P1433454
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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	105	105	105	98	98	98	91	91	91	88			88
1	109	105	102	99	105	102	99	97	96	94	92	90	88	87	85	84	82	80			80
2	102	96	91	87	98	93	89	85	88	84	81	83	80	78	79	76	74	72			72
3	95	88	82	77	92	85	80	75	81	76	73	77	73	70	73	70	68	65			65
4	90	80	74	69	87	79	72	68	75	70	66	71	67	64	68	65	62	60			60
5	84	74	67	62	81	73	66	62	69	64	60	66	62	58	64	60	57	55			55
6	79	69	62	57	77	67	61	56	65	59	55	62	57	54	60	56	52	50			50
7	75	64	57	52	72	63	56	52	60	55	51	58	53	50	56	52	49	47			47
8	71	60	53	48	69	59	52	48	57	51	47	55	50	46	53	48	45	44			44
9	67	56	49	45	65	55	49	44	53	48	44	51	46	43	50	45	42	41			41
10	63	53	46	42	62	52	46	42	50	45	41	48	44	40	47	43	40	38			38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	69856	69856	69856	69856
5°	69431	74070	69431	65828
10°	68578	75972	68578	62301
15°	66553	70601	66553	57549
20°	62243	56613	62243	51260
25°	55091	39225	55091	42958
30°	44732	25518	44732	32141
35°	32083	16526	32083	21397
40°	20742	11391	20742	13494
45°	13161	8823	13161	9615
50°	9774	7498	9774	8008
55°	7980	6830	7980	7070
60°	6910	6507	6910	6546
65°	6299	6274	6299	6248
70°	5971	6147	5971	6069
75°	5583	5948	5583	5769
80°	4904	5615	4904	5250
85°	3171	4009	3171	3823

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 18504 cd/sqm



TEST NUMBER: P1433454
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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	1414.4	7.5
10°-20°	3848.0	20.4
20°-30°	4513.0	24.0
30°-40°	3138.5	16.7
40°-50°	1559.7	8.3
50°-60°	932.9	5.0
60°-70°	656.6	3.5
70°-80°	423.0	2.2
80°-90°	138.2	0.7
90°-100°	58.8	0.3
100°-110°	385.3	2.0
110°-120°	712.1	3.8
120°-130°	423.0	2.2
130°-140°	255.6	1.4
140°-150°	176.6	0.9
150°-160°	115.0	0.6
160°-170°	65.8	0.3
170°-180°	21.8	0.1
0°-30°	9775.4	51.9
0°-40°	12913.9	68.6
0°-60°	15406.4	81.8
0°-90°	16624.2	88.2
90°-120°	1156.2	6.1
90°-150°	2011.3	10.7
90°-180°	2214.0	11.8
0°-180°	18838.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	14875	14875	14875	14875	14875	
5°	14825	15815	14825	14055	14825	1407
15°	13962	14812	13962	12074	13962	3902
25°	11002	7833	11002	8579	11002	4981
35°	5888	3033	5888	3927	5888	3676
45°	2129	1428	2129	1556	2129	1742
55°	1078	923	1078	955	1078	986
65°	658	655	658	652	658	660
75°	393	419	393	406	393	413
85°	109	138	109	131	109	121
90°	16	18	16	16	16	13
95°	31	29	31	27	31	33
105°	177	90	177	134	177	239
115°	758	647	758	616	758	691
125°	485	508	485	444	485	446
135°	306	353	306	324	306	243
145°	276	289	276	269	276	173
155°	246	256	246	238	246	115
165°	230	237	230	226	230	66
175°	229	232	229	225	229	22
180°	228	228	228	228	228	



TEST NUMBER: P1433454
 CATALOG NUMBER: EHBR1-18-UNV-TASM-L935-UPL24

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4
2.5°	14866.7	15058.9	15214.6	15317.2	15368.0	15317.2	15214.6	15058.9	14866.7	14675.7	14544.3
5°	14824.7	15209.6	15535.7	15749.0	15815.1	15749.0	15535.7	15209.6	14824.7	14460.9	14219.6
7.5°	14724.0	15323.7	15808.2	16057.3	16118.1	16057.3	15808.2	15323.7	14724.0	14209.0	13904.2
10°	14570.3	15395.6	15955.5	16133.9	16141.2	16133.9	15955.5	15395.6	14570.3	13876.5	13517.0
12.5°	14325.1	15370.0	15906.1	15847.5	15714.4	15847.5	15906.1	15370.0	14325.1	13470.4	13016.9
15°	13962.5	15217.9	15593.4	15116.7	14811.8	15116.7	15593.4	15217.9	13962.5	12922.0	12396.0
17.5°	13451.5	14933.4	14940.7	13997.6	13422.4	13997.6	14940.7	14933.4	13451.5	12251.4	11672.1
20°	12792.8	14477.1	14042.0	12317.0	11635.6	12317.0	14042.0	14477.1	12792.8	11458.7	10890.3
22.5°	11967.2	13861.8	12790.3	10626.4	9696.6	10626.4	12790.3	13861.8	11967.2	10536.8	9945.2
25°	11001.6	13107.8	11444.0	8784.2	7833.1	8784.2	11444.0	13107.8	11001.6	9438.3	8903.3
27.5°	9865.7	12152.2	10010.2	7178.1	6300.6	7178.1	10010.2	12152.2	9865.7	8304.2	7757.8
30°	8604.1	10927.1	8518.1	5716.5	4908.4	5716.5	8518.1	10927.1	8604.1	7030.0	6540.8
32.5°	7191.5	9726.3	7085.2	4580.4	3896.0	4580.4	7085.2	9726.3	7191.5	5814.1	5302.8
35°	5888.3	8223.9	5793.3	3599.1	3033.1	3599.1	5793.3	8223.9	5888.3	4666.3	4164.2
37.5°	4621.1	6804.4	4618.1	2898.2	2460.2	2898.2	4618.1	6804.4	4621.1	3627.9	3220.3
40°	3595.2	5320.4	3618.3	2313.5	1974.3	2313.5	3618.3	5320.4	3595.2	2760.3	2499.6
42.5°	2724.1	4068.2	2844.1	1898.8	1677.0	1898.8	2844.1	4068.2	2724.1	2174.8	1979.6
45°	2129.4	2993.8	2220.9	1601.9	1427.6	1601.9	2220.9	2993.8	2129.4	1751.5	1620.3
47.5°	1734.2	2313.8	1800.0	1374.0	1251.8	1374.0	1800.0	2313.8	1734.2	1481.4	1383.2
50°	1456.6	1775.4	1494.5	1199.4	1117.4	1199.4	1494.5	1775.4	1456.6	1268.6	1203.1
52.5°	1251.3	1448.0	1272.8	1068.9	1013.6	1068.9	1272.8	1448.0	1251.3	1109.9	1069.2
55°	1078.4	1217.3	1106.8	961.3	923.0	961.3	1106.8	1217.3	1078.4	987.7	957.6
57.5°	947.0	1032.6	961.3	869.4	844.1	869.4	961.3	1032.6	947.0	879.0	862.7
60°	830.7	894.3	848.2	789.4	782.2	789.4	848.2	894.3	830.7	790.8	780.2
62.5°	741.1	781.3	750.1	717.5	711.0	717.5	750.1	781.3	741.1	710.5	712.4
65°	657.5	694.8	670.3	652.7	654.9	652.7	670.3	694.8	657.5	643.2	646.3
67.5°	592.7	612.2	601.6	591.7	594.1	591.7	601.6	612.2	592.7	578.8	583.5
70°	523.9	544.8	533.9	535.3	539.4	535.3	533.9	544.8	523.9	519.7	523.3
72.5°	458.0	474.2	470.6	473.9	478.4	473.9	470.6	474.2	458.0	457.4	457.7
75°	393.3	405.6	407.2	412.0	419.0	412.0	407.2	405.6	393.3	389.1	394.2
77.5°	322.7	336.7	342.0	348.4	358.7	348.4	342.0	336.7	322.7	325.6	328.0
80°	258.0	264.5	276.2	280.9	295.4	280.9	276.2	264.5	258.0	253.3	256.9
82.5°	188.9	194.7	204.7	213.6	222.1	213.6	204.7	194.7	188.9	186.6	186.9
85°	109.0	118.0	124.7	135.3	137.8	135.3	124.7	118.0	109.0	111.6	109.0
87.5°	38.2	41.0	46.9	51.0	51.3	51.0	46.9	41.0	38.2	39.1	35.4
90°	16.2	27.5	47.4	26.1	18.2	26.1	47.4	27.5	16.2	28.5	44.4
92.5°	21.1	37.3	67.0	34.7	24.3	34.7	67.0	37.3	21.1	37.0	71.3
95°	31.2	45.9	85.4	38.3	29.2	38.3	85.4	45.9	31.2	49.3	99.5
97.5°	48.3	56.9	96.3	40.9	35.3	40.9	96.3	56.9	48.3	60.3	114.2
100°	64.3	64.3	176.0	46.9	40.2	46.9	176.0	64.3	64.3	74.0	177.9
102.5°	97.3	125.8	407.8	93.9	48.9	93.9	407.8	125.8	97.3	138.9	377.6
105°	176.9	287.5	717.7	242.1	89.5	242.1	717.7	287.5	176.9	290.8	672.8
107.5°	335.0	536.1	924.7	477.3	208.4	477.3	924.7	536.1	335.0	515.1	887.4
110°	535.8	749.3	1009.2	653.6	421.4	653.6	1009.2	749.3	535.8	707.4	930.3



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 CATALOG NUMBER: EHBR1-18-UNV-TASM-L935-UPL24

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	697.5	835.0	986.0	724.7	583.1	724.7	986.0	835.0	697.5	780.8	891.1
115°	757.9	822.8	880.6	722.3	646.8	722.3	880.6	822.8	757.9	762.5	795.6
117.5°	732.1	753.0	760.6	678.2	650.6	678.2	760.6	753.0	732.1	685.5	675.5
120°	661.1	652.5	640.8	613.2	613.8	613.2	640.8	652.5	661.1	598.6	564.0
122.5°	571.9	553.6	541.5	547.3	563.6	547.3	541.5	553.6	571.9	509.4	483.4
125°	485.0	466.6	472.0	491.0	507.5	491.0	472.0	466.6	485.0	432.6	426.2
127.5°	411.7	403.1	421.8	443.3	457.2	443.3	421.8	403.1	411.7	378.7	385.7
130°	359.4	361.5	386.3	404.3	413.2	404.3	386.3	361.5	359.4	343.4	360.3
132.5°	326.6	336.1	359.7	375.2	380.4	375.2	359.7	336.1	326.6	322.0	342.5
135°	306.1	320.1	341.6	351.7	353.4	351.7	341.6	320.1	306.1	307.5	326.6
137.5°	294.1	308.2	324.5	332.4	330.2	332.4	324.5	308.2	294.1	298.0	312.4
140°	287.0	301.2	308.5	317.7	315.7	317.7	308.5	301.2	287.0	289.5	300.4
142.5°	280.0	292.8	296.6	303.2	301.0	303.2	296.6	292.8	280.0	282.4	289.8
145°	276.5	286.0	283.3	292.2	289.0	292.2	283.3	286.0	276.5	277.5	281.4
147.5°	270.4	277.5	273.8	281.4	278.3	281.4	273.8	277.5	270.4	270.4	271.9
150°	263.3	268.2	263.0	271.9	271.2	271.9	263.0	268.2	263.3	262.1	263.6
152.5°	253.8	258.7	253.8	263.8	262.9	263.8	253.8	258.7	253.8	252.6	254.0
155°	245.8	248.2	245.8	255.9	256.1	255.9	245.8	248.2	245.8	245.5	246.1
157.5°	240.2	241.7	240.4	249.4	249.7	249.4	240.4	241.7	240.2	240.2	240.4
160°	235.2	237.6	236.7	244.3	244.6	244.3	236.7	237.6	235.2	236.2	236.5
162.5°	233.3	233.3	232.7	240.3	240.8	240.3	232.7	233.3	233.3	233.3	234.6
165°	230.5	231.7	229.8	235.2	237.1	235.2	229.8	231.7	230.5	231.4	231.4
167.5°	229.8	228.6	229.1	233.7	235.5	233.7	229.1	228.6	229.8	230.8	230.8
170°	227.6	227.9	227.3	231.7	233.6	231.7	227.3	227.9	227.6	228.8	229.8
172.5°	228.5	228.5	226.9	230.1	233.1	230.1	226.9	228.5	228.5	229.4	230.6
175°	229.0	228.1	227.4	229.5	232.5	229.5	227.4	228.1	229.0	228.8	228.8
177.5°	227.9	228.4	228.9	230.9	235.2	230.9	228.9	228.4	227.9	228.8	228.8
180°	228.4	228.4	228.4	228.4	228.4	228.4	228.4	228.4	228.4	228.4	228.4



TEST NUMBER: P1433454

CATALOG NUMBER: EHBR1-18-UNV-TASM-L935-UPL24

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	14875.4	14875.4	14875.4	14875.4	14875.4	14875.4
2.5°	14443.4	14433.8	14443.4	14544.3	14675.7	14866.7
5°	14107.8	14055.4	14107.8	14219.6	14460.9	14824.7
7.5°	13716.9	13686.6	13716.9	13904.2	14209.0	14724.0
10°	13305.6	13236.7	13305.6	13517.0	13876.5	14570.3
12.5°	12798.5	12707.2	12798.5	13016.9	13470.4	14325.1
15°	12153.5	12073.5	12153.5	12396.0	12922.0	13962.5
17.5°	11461.5	11388.9	11461.5	11672.1	12251.4	13451.5
20°	10592.4	10535.5	10592.4	10890.3	11458.7	12792.8
22.5°	9680.5	9627.2	9680.5	9945.2	10536.8	11967.2
25°	8607.7	8578.7	8607.7	8903.3	9438.3	11001.6
27.5°	7448.4	7399.1	7448.4	7757.8	8304.2	9865.7
30°	6264.1	6182.3	6264.1	6540.8	7030.0	8604.1
32.5°	5105.6	5046.8	5105.6	5302.8	5814.1	7191.5
35°	3986.0	3927.1	3986.0	4164.2	4666.3	5888.3
37.5°	3106.0	3001.9	3106.0	3220.3	3627.9	4621.1
40°	2355.6	2338.9	2355.6	2499.6	2760.3	3595.2
42.5°	1917.7	1872.2	1917.7	1979.6	2174.8	2724.1
45°	1573.5	1555.6	1573.5	1620.3	1751.5	2129.4
47.5°	1353.2	1360.9	1353.2	1383.2	1481.4	1734.2
50°	1188.8	1193.5	1188.8	1203.1	1268.6	1456.6
52.5°	1067.7	1063.6	1067.7	1069.2	1109.9	1251.3
55°	960.6	955.4	960.6	957.6	987.7	1078.4
57.5°	866.9	870.8	866.9	862.7	879.0	947.0
60°	783.3	786.9	783.3	780.2	790.8	830.7
62.5°	712.6	714.9	712.6	712.4	710.5	741.1
65°	649.7	652.2	649.7	646.3	643.2	657.5
67.5°	589.4	589.4	589.4	583.5	578.8	592.7
70°	532.7	532.5	532.7	523.3	519.7	523.9
72.5°	464.7	471.4	464.7	457.7	457.4	458.0
75°	398.6	406.4	398.6	394.2	389.1	393.3
77.5°	331.6	343.7	331.6	328.0	325.6	322.7
80°	263.0	276.2	263.0	256.9	253.3	258.0
82.5°	194.4	204.2	194.4	186.9	186.6	188.9
85°	115.7	131.4	115.7	109.0	111.6	109.0
87.5°	37.1	47.4	37.1	35.4	39.1	38.2
90°	26.0	16.2	26.0	44.4	28.5	16.2
92.5°	39.5	23.6	39.5	71.3	37.0	21.1
95°	45.6	27.2	45.6	99.5	49.3	31.2
97.5°	50.5	34.8	50.5	114.2	60.3	48.3
100°	59.1	45.9	59.1	177.9	74.0	64.3
102.5°	125.3	77.7	125.3	377.6	138.9	97.3
105°	263.7	134.0	263.7	672.8	290.8	176.9
107.5°	471.9	232.0	471.9	887.4	515.1	335.0
110°	626.2	433.0	626.2	930.3	707.4	535.8



TEST NUMBER: P1433454

CATALOG NUMBER: EHBR1-18-UNV-TASM-L935-UPL24

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	672.8	584.9	672.8	891.1	780.8	697.5
115°	647.0	615.5	647.0	795.6	762.5	757.9
117.5°	590.7	594.6	590.7	675.5	685.5	732.1
120°	525.8	550.6	525.8	564.0	598.6	661.1
122.5°	466.0	495.4	466.0	483.4	509.4	571.9
125°	414.6	444.3	414.6	426.2	432.6	485.0
127.5°	379.0	399.0	379.0	385.7	378.7	411.7
130°	351.1	368.3	351.1	360.3	343.4	359.4
132.5°	331.8	342.9	331.8	342.5	322.0	326.6
135°	314.9	324.5	314.9	326.6	307.5	306.1
137.5°	300.5	308.8	300.5	312.4	298.0	294.1
140°	287.7	294.7	287.7	300.4	289.5	287.0
142.5°	274.4	279.4	274.4	289.8	282.4	280.0
145°	265.2	268.9	265.2	281.4	277.5	276.5
147.5°	257.2	259.7	257.2	271.9	270.4	270.4
150°	249.2	251.6	249.2	263.6	262.1	263.3
152.5°	240.9	243.6	240.9	254.0	252.6	253.8
155°	235.3	238.0	235.3	246.1	245.5	245.8
157.5°	232.2	234.0	232.2	240.4	240.2	240.2
160°	229.4	230.8	229.4	236.5	236.2	235.2
162.5°	226.2	227.8	226.2	234.6	233.3	233.3
165°	225.6	225.9	225.6	231.4	231.4	230.5
167.5°	224.6	225.9	224.6	230.8	230.8	229.8
170°	224.9	225.1	224.9	229.8	228.8	227.6
172.5°	225.4	225.7	225.4	230.6	229.4	228.5
175°	224.9	225.1	224.9	228.8	228.8	229.0
177.5°	226.3	226.6	226.3	228.8	228.8	227.9
180°	228.4	228.4	228.4	228.4	228.4	228.4



TEST NUMBER: P1433454
 CATALOG NUMBER: EHBR1-18-UNV-TASM-L935-UPL24

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	14.99	16.03	15.55	16.57	17.17	14.31	15.35	14.87	15.89	16.49
	3H	16.53	17.46	17.11	18.02	18.66	16.15	17.08	16.73	17.64	18.28
	4H	17.17	18.03	17.77	18.61	19.27	16.93	17.80	17.53	18.37	19.03
	6H	17.65	18.44	18.26	19.03	19.70	17.57	18.37	18.18	18.95	19.62
	8H	17.80	18.55	18.42	19.15	19.83	17.79	18.54	18.42	19.15	19.83
	12H	17.87	18.58	18.49	19.18	19.88	17.92	18.64	18.54	19.23	19.93
4H	2H	15.40	16.26	16.00	16.84	17.50	14.88	15.74	15.48	16.31	16.97
	3H	17.19	17.91	17.80	18.52	19.20	16.93	17.65	17.54	18.26	18.94
	4H	17.97	18.61	18.59	19.23	19.94	17.84	18.48	18.47	19.11	19.82
	6H	18.58	19.13	19.23	19.78	20.51	18.61	19.16	19.26	19.81	20.54
	8H	18.77	19.29	19.43	19.94	20.67	18.88	19.40	19.53	20.04	20.77
	12H	18.88	19.34	19.55	20.01	20.75	19.04	19.50	19.72	20.17	20.91
8H	4H	18.21	18.73	18.87	19.38	20.11	18.12	18.63	18.77	19.28	20.01
	6H	18.95	19.38	19.64	20.07	20.80	19.02	19.44	19.70	20.13	20.87
	8H	19.23	19.60	19.93	20.30	21.05	19.37	19.75	20.07	20.45	21.20
	12H	19.39	19.72	20.09	20.40	21.23	19.62	19.95	20.32	20.63	21.45
12H	4H	18.22	18.68	18.89	19.35	20.09	18.12	18.58	18.80	19.26	19.99
	6H	19.00	19.37	19.70	20.07	20.82	19.06	19.44	19.77	20.14	20.89
	8H	19.31	19.64	20.01	20.32	21.14	19.47	19.79	20.16	20.48	21.30

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



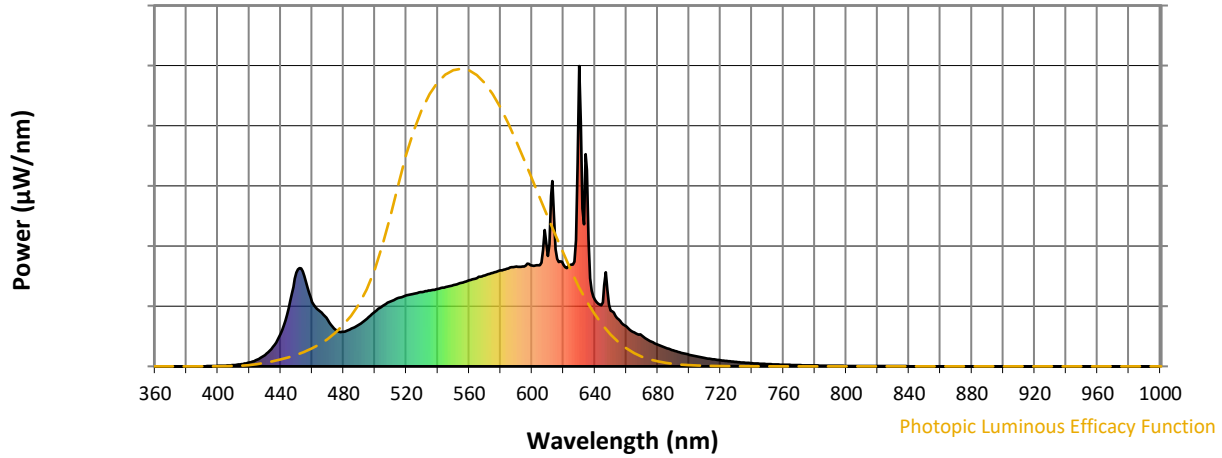
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



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

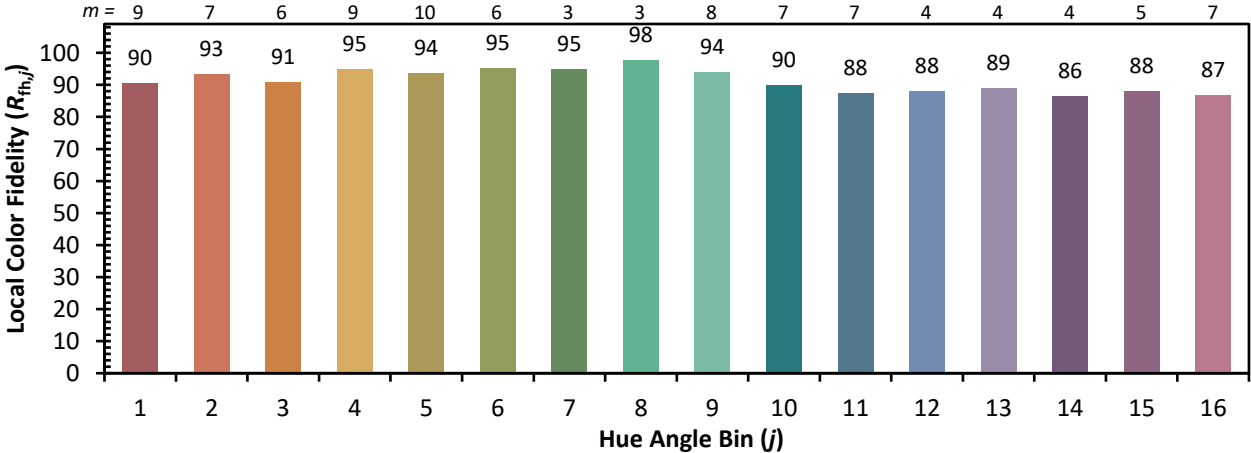


Individual Sample Fidelity Index ($R_{f,i}$)

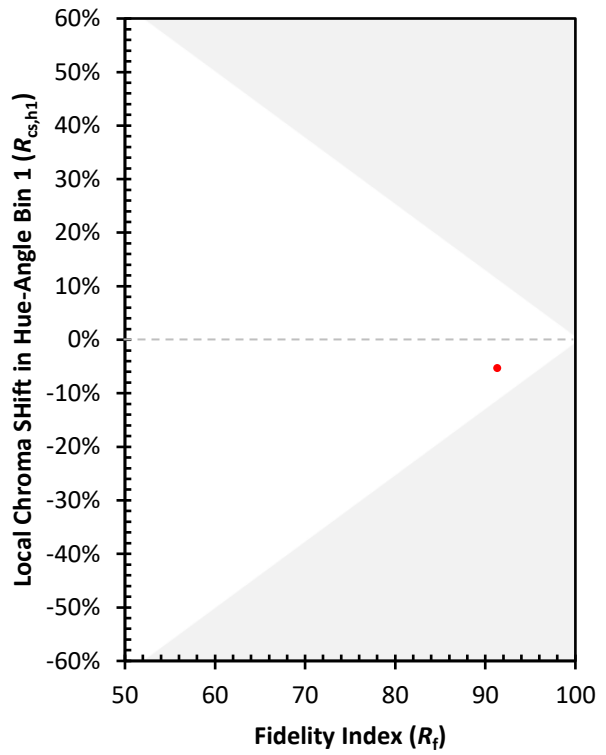
CES01 = 86	CES26 = 94	CES51 = 97	CES76 = 90
CES02 = 63	CES27 = 92	CES52 = 98	CES77 = 86
CES03 = 31	CES28 = 97	CES53 = 98	CES78 = 86
CES04 = 70	CES29 = 97	CES54 = 93	CES79 = 90
CES05 = 50	CES30 = 92	CES55 = 92	CES80 = 91
CES06 = 51	CES31 = 97	CES56 = 96	CES81 = 74
CES07 = 43	CES32 = 89	CES57 = 94	CES82 = 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)