

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: NEO-RAY

Report Number: P910897

Luminaire Tested: DFN2DIP-HX4F0-050D080US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910897
REPORT IS A COMBINATION OF REPORTS P899374 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D080US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

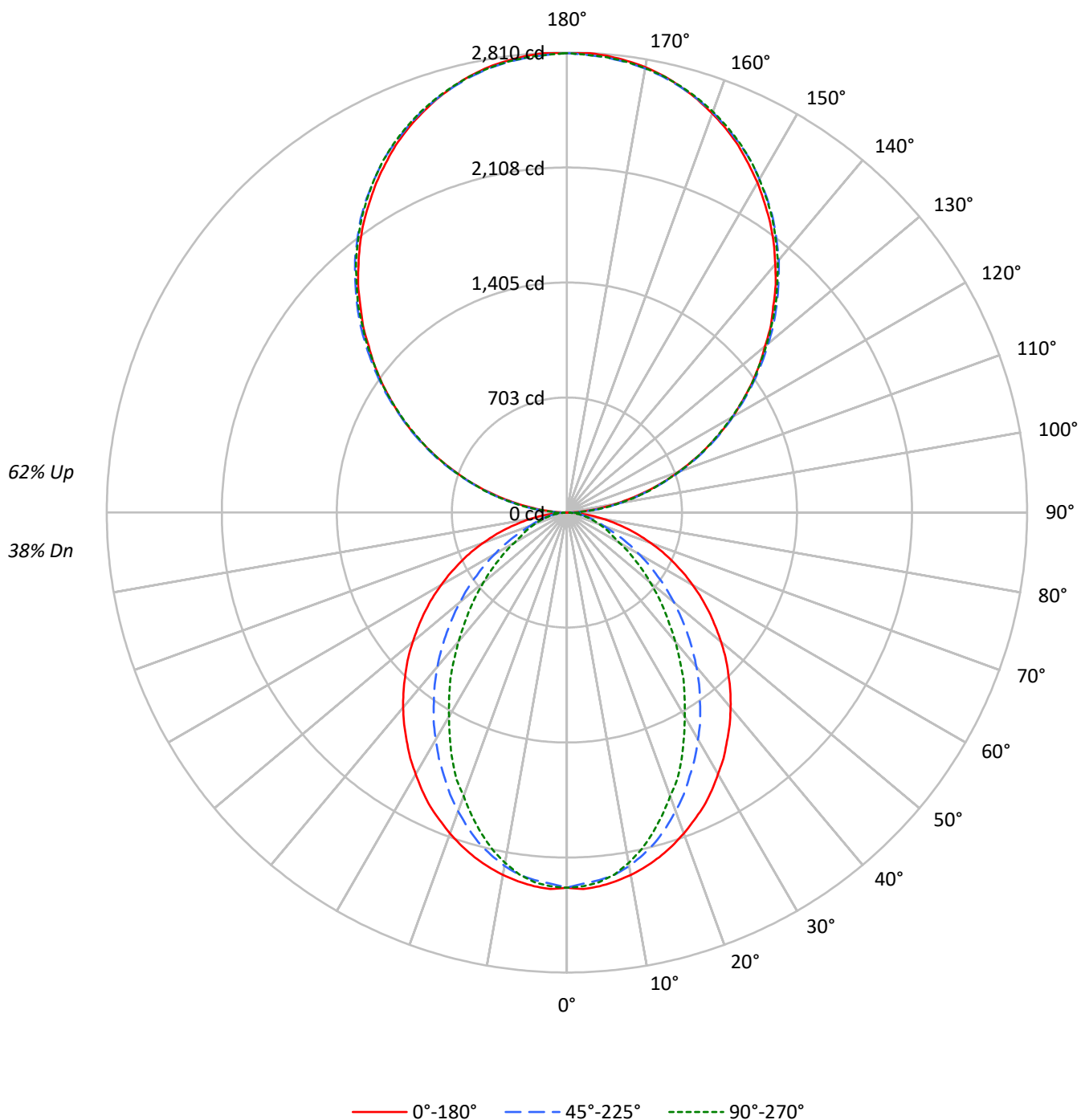
Lumens per Lamp: N/A
Luminaire Lumens: 12565.0 lumens
Efficiency: N/A
Efficacy: 141.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 89
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	95	95	95	95	76	76	76	60	60	60	45	45	45
1	95	91	88	84	86	83	80	77	67	65	63	53	52	50	40	39	38
2	87	80	74	69	79	73	68	64	59	56	53	47	45	43	36	34	33
3	80	71	64	58	72	64	58	54	53	48	45	42	39	37	32	30	28
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25
5	67	56	48	42	61	51	44	39	42	37	33	34	30	28	26	24	22
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14
10	46	35	28	23	42	32	26	21	27	22	19	22	18	16	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1704	1704	1704
5°	1707	1677	1688
10°	1690	1644	1633
15°	1667	1590	1548
20°	1636	1515	1444
25°	1605	1432	1343
30°	1563	1346	1216
35°	1522	1253	1104
40°	1479	1158	975
45°	1431	1051	859
50°	1380	944	745
55°	1328	829	636
60°	1266	710	523
65°	1196	588	471
70°	1111	474	427
75°	1005	418	388
80°	850	352	337
85°	595	236	254

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2117 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	214.8	1.7
10°-20°	589.6	4.7
20°-30°	827.8	6.6
30°-40°	902.4	7.2
40°-50°	829.4	6.6
50°-60°	651.3	5.2
60°-70°	424.0	3.4
70°-80°	218.2	1.7
80°-90°	63.7	0.5
90°-100°	173.6	1.4
100°-110°	551.7	4.4
110°-120°	944.1	7.5
120°-130°	1241.6	9.9
130°-140°	1393.7	11.1
140°-150°	1366.6	10.9
150°-160°	1146.4	9.1
160°-170°	760.3	6.1
170°-180°	265.7	2.1
0°-30°	1632.2	13.0
0°-40°	2534.6	20.2
0°-60°	4015.3	32.0
0°-90°	4721.3	37.6
90°-120°	1669.4	13.3
90°-150°	5671.3	45.1
90°-180°	7844.0	62.4
0°-180°	12565.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2281	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	3	30	83	78	80	12
95°	124	147	151	151	147	137
105°	509	516	521	525	525	537
115°	947	961	957	954	947	937
125°	1378	1399	1392	1385	1382	1231
135°	1782	1809	1814	1811	1804	1378
145°	2164	2181	2194	2197	2188	1352
155°	2474	2481	2489	2500	2493	1139
165°	2692	2689	2689	2706	2694	759
175°	2801	2794	2789	2806	2792	266
180°	2806	2806	2806	2806	2806	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2291.7	2291.7	2291.7	2291.7	2291.7
2.5°	2302.1	2291.7	2268.9	2289.8	2285.5
5°	2291.7	2281.4	2254.4	2273.0	2266.9
7.5°	2273.0	2260.7	2231.6	2239.8	2229.4
10°	2248.2	2233.6	2192.3	2185.9	2173.5
12.5°	2217.1	2198.5	2142.4	2130.1	2107.1
15°	2179.7	2156.9	2086.5	2047.1	2026.4
17.5°	2136.2	2103.0	2015.8	1970.2	1937.0
20°	2086.5	2044.9	1941.2	1889.5	1843.7
22.5°	2032.6	1984.8	1864.5	1794.0	1763.0
25°	1978.6	1912.1	1775.3	1690.3	1659.1
27.5°	1914.4	1843.7	1692.3	1594.9	1547.2
30°	1845.9	1767.0	1601.1	1495.4	1439.3
32.5°	1779.5	1684.0	1514.1	1389.6	1337.7
35°	1704.9	1599.1	1416.6	1285.9	1240.2
37.5°	1632.2	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.8	1082.6	1028.7
42.5°	1476.7	1344.0	1134.5	980.9	929.2
45°	1393.8	1254.7	1037.0	889.6	839.8
47.5°	1314.9	1167.8	943.8	796.4	750.8
50°	1227.9	1080.6	852.5	709.2	665.8
52.5°	1142.7	987.1	765.3	628.5	589.1
55°	1059.8	898.0	673.9	549.6	510.3
57.5°	974.8	808.9	593.2	477.1	443.8
60°	887.6	721.7	508.0	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.5	547.5	360.9	290.4	284.1
67.5°	632.6	464.6	290.4	255.1	248.9
70°	545.5	383.7	240.5	219.8	211.5
72.5°	462.6	309.0	201.2	184.6	180.4
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.8	122.3	118.1
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.2	45.6	39.4	39.4	39.4
87.5°	33.3	16.5	16.5	14.5	14.5
90°	2.6	30.5	83.0	77.9	80.4
92.5°	52.5	71.1	73.6	76.1	76.1
95°	123.5	147.2	151.4	151.4	147.2
97.5°	205.6	227.6	236.9	236.9	236.9
100°	300.3	319.7	326.5	326.5	323.9
102.5°	400.1	414.5	423.7	426.3	423.7
105°	509.3	516.0	521.1	525.3	525.3
107.5°	617.5	627.7	627.7	629.4	617.5
110°	722.4	735.9	735.9	735.9	729.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	835.7	850.2	847.6	840.8	835.7
115°	947.4	960.9	956.7	954.2	947.4
117.5°	1058.2	1076.8	1065.0	1058.2	1051.4
120°	1169.9	1188.5	1169.9	1169.9	1162.2
122.5°	1271.4	1295.1	1283.2	1276.5	1271.4
125°	1377.9	1399.1	1392.3	1384.7	1382.3
127.5°	1482.1	1508.2	1498.9	1488.8	1482.1
130°	1579.3	1609.7	1605.5	1600.5	1591.2
132.5°	1688.5	1712.1	1713.8	1702.0	1695.2
135°	1782.3	1808.6	1813.7	1811.1	1804.3
137.5°	1887.2	1908.4	1912.6	1910.9	1900.7
140°	1979.5	2000.5	2012.4	2012.4	2003.1
142.5°	2074.2	2095.3	2102.1	2104.7	2095.3
145°	2163.9	2180.7	2194.3	2196.8	2187.5
147.5°	2244.2	2265.4	2275.4	2279.8	2270.5
150°	2327.1	2341.4	2350.7	2358.4	2350.7
152.5°	2400.7	2415.1	2426.9	2436.3	2426.9
155°	2474.3	2481.1	2488.7	2500.5	2492.9
157.5°	2537.7	2542.8	2547.0	2563.9	2552.1
160°	2594.4	2599.5	2602.0	2616.4	2606.3
162.5°	2646.9	2646.9	2649.4	2665.5	2653.6
165°	2691.7	2689.1	2689.1	2706.1	2694.2
167.5°	2732.2	2724.7	2724.7	2741.6	2729.7
170°	2762.7	2756.0	2753.4	2770.4	2756.0
172.5°	2783.9	2777.2	2774.6	2791.5	2777.2
175°	2800.8	2794.0	2788.9	2805.9	2791.5
177.5°	2810.1	2803.3	2798.2	2812.6	2798.2
180°	2805.9	2805.9	2805.9	2805.9	2805.9

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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	7.71	8.45	8.78	9.51	10.95	3.69	4.43	4.75	5.49	6.93
	3H	9.39	10.05	10.46	11.12	12.58	4.87	5.53	5.94	6.60	8.06
	4H	9.99	10.62	11.07	11.69	13.15	5.32	5.94	6.40	7.02	8.48
	6H	10.41	10.98	11.50	12.06	13.54	5.64	6.21	6.73	7.29	8.76
	8H	10.53	11.08	11.63	12.17	13.64	5.72	6.27	6.82	7.36	8.83
	12H	10.59	11.11	11.69	12.20	13.69	5.77	6.29	6.87	7.37	8.86
4H	2H	7.72	8.35	8.81	9.42	10.88	4.27	4.90	5.36	5.97	7.44
	3H	9.54	10.06	10.64	11.16	12.64	5.62	6.14	6.71	7.24	8.71
	4H	10.23	10.71	11.33	11.80	13.30	6.16	6.64	7.26	7.73	9.23
	6H	10.74	11.15	11.85	12.27	13.76	6.58	6.99	7.69	8.10	9.59
	8H	10.92	11.30	12.03	12.40	13.91	6.71	7.09	7.81	8.19	9.70
	12H	11.01	11.35	12.14	12.47	13.98	6.77	7.11	7.89	8.23	9.74
8H	4H	10.19	10.58	11.30	11.68	13.19	6.44	6.82	7.54	7.92	9.43
	6H	10.76	11.07	11.89	12.22	13.72	6.95	7.27	8.08	8.41	9.92
	8H	10.98	11.25	12.11	12.38	13.90	7.14	7.42	8.28	8.55	10.07
	12H	11.11	11.35	12.25	12.48	14.04	7.26	7.50	8.40	8.63	10.19
12H	4H	10.14	10.49	11.27	11.60	13.12	6.44	6.78	7.56	7.90	9.41
	6H	10.73	11.01	11.87	12.14	13.66	7.00	7.28	8.14	8.41	9.93
	8H	10.95	11.19	12.09	12.32	13.88	7.21	7.45	8.35	8.58	10.14