

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: P927106

Luminaire Tested: DFN2DIP-HX4F0-100D080US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927106
REPORT IS A COMBINATION OF REPORTS P900904 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D080US830-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

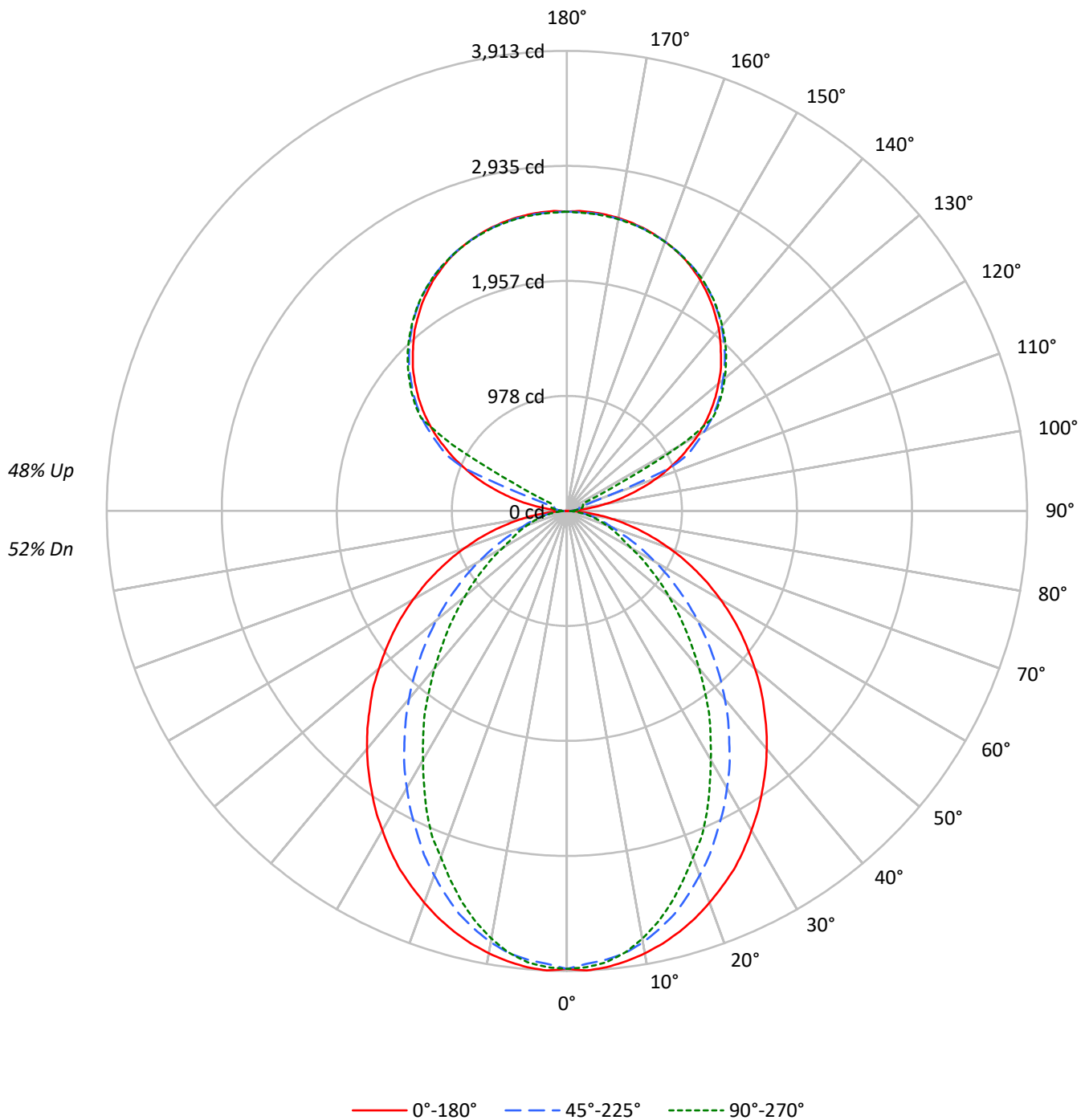
Lumens per Lamp: N/A
Luminaire Lumens: 15475.8 lumens
Efficiency: N/A
Efficacy: 98.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 157.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58
1	99	95	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43
3	83	74	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	35	32
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28
6	65	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23
8	56	44	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2896	2896	2896
5°	2901	2851	2869
10°	2873	2795	2776
15°	2834	2703	2631
20°	2781	2576	2454
25°	2728	2433	2284
30°	2656	2287	2067
35°	2586	2130	1876
40°	2515	1968	1658
45°	2432	1787	1460
50°	2346	1605	1267
55°	2256	1410	1081
60°	2153	1206	890
65°	2033	999	801
70°	1889	806	725
75°	1707	711	660
80°	1444	598	573
85°	1010	400	431

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2432 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.1	2.4
10°-20°	1002.2	6.5
20°-30°	1407.1	9.1
30°-40°	1533.8	9.9
40°-50°	1409.7	9.1
50°-60°	1107.1	7.2
60°-70°	720.6	4.7
70°-80°	370.9	2.4
80°-90°	99.2	0.6
90°-100°	83.9	0.5
100°-110°	312.8	2.0
110°-120°	829.6	5.4
120°-130°	1375.9	8.9
130°-140°	1461.6	9.4
140°-150°	1358.3	8.8
150°-160°	1092.1	7.1
160°-170°	703.7	4.5
170°-180°	242.2	1.6
0°-30°	2774.3	17.9
0°-40°	4308.1	27.8
0°-60°	6825.0	44.1
0°-90°	8015.7	51.8
90°-120°	1226.3	7.9
90°-150°	5422.1	35.0
90°-180°	7460.0	48.2
0°-180°	15475.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3895	3895	3895	3895	3895	
5°	3895	3878	3832	3864	3853	369
15°	3705	3666	3546	3479	3444	1044
25°	3363	3250	3018	2873	2820	1547
35°	2898	2718	2408	2186	2108	1814
45°	2369	2133	1763	1512	1428	1829
55°	1801	1526	1146	934	867	1610
65°	1216	930	613	494	483	1206
75°	648	402	282	257	254	686
85°	152	77	67	67	67	174
90°	2	22	37	46	50	15
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2500	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3895.4	3895.4	3895.4	3895.4	3895.4
2.5°	3912.9	3895.4	3856.4	3892.0	3884.9
5°	3895.4	3877.7	3831.7	3863.6	3853.0
7.5°	3863.6	3842.6	3793.2	3807.0	3789.5
10°	3821.3	3796.6	3726.3	3715.4	3694.5
12.5°	3768.6	3736.7	3641.3	3620.4	3581.5
15°	3705.0	3666.0	3546.3	3479.4	3444.3
17.5°	3630.9	3574.4	3426.4	3348.9	3292.4
20°	3546.3	3475.7	3299.5	3211.7	3133.8
22.5°	3454.7	3373.6	3169.0	3049.4	2996.6
25°	3363.1	3250.2	3017.5	2873.1	2820.1
27.5°	3253.9	3133.8	2876.5	2710.8	2629.7
30°	3137.6	3003.3	2721.3	2541.8	2446.4
32.5°	3024.7	2862.3	2573.6	2361.9	2273.6
35°	2897.8	2718.0	2407.9	2185.8	2107.9
37.5°	2774.4	2580.3	2252.7	2009.2	1921.3
40°	2643.9	2432.6	2090.4	1840.1	1748.5
42.5°	2510.0	2284.4	1928.4	1667.4	1579.4
45°	2369.0	2132.6	1762.8	1512.1	1427.6
47.5°	2235.1	1984.9	1604.1	1353.5	1276.1
50°	2087.0	1836.7	1448.9	1205.5	1131.8
52.5°	1942.2	1677.8	1300.8	1068.1	1001.2
55°	1801.2	1526.4	1145.6	934.3	867.3
57.5°	1656.9	1374.8	1008.4	810.8	754.4
60°	1508.8	1226.8	863.6	684.1	627.6
62.5°	1364.4	1082.4	740.1	571.2	543.1
65°	1216.3	930.5	613.4	493.7	482.8
67.5°	1075.3	789.5	493.7	433.5	423.0
70°	927.1	652.3	408.8	373.6	359.5
72.5°	786.1	525.1	341.8	313.8	306.7
75°	648.5	401.7	282.0	257.3	253.9
77.5°	511.3	285.4	222.1	207.9	200.8
80°	384.1	204.6	169.1	155.2	155.2
82.5°	267.8	137.6	116.3	109.2	109.2
85°	151.5	77.4	66.9	66.9	66.9
87.5°	56.5	28.1	28.1	24.7	24.7
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.1	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.7	134.5
105°	559.8	615.1	112.3	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.8	854.3	322.3	138.2	145.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	933.6	966.6	935.4	141.7	147.4
115°	1058.7	1090.0	1136.1	283.6	151.1
117.5°	1167.4	1204.1	1235.6	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.8	1123.2
122.5°	1391.9	1421.5	1458.4	1469.4	1471.3
125°	1496.9	1520.9	1555.9	1568.8	1574.3
127.5°	1592.6	1618.5	1646.3	1664.5	1666.3
130°	1682.9	1712.4	1732.6	1753.0	1751.2
132.5°	1775.0	1799.0	1819.2	1835.8	1834.0
135°	1852.4	1881.9	1898.3	1917.0	1913.2
137.5°	1933.4	1955.4	1974.0	1992.4	1986.9
140°	2012.4	2027.3	2047.5	2064.1	2054.8
142.5°	2079.0	2091.8	2115.6	2130.3	2121.1
145°	2148.9	2146.9	2178.2	2191.1	2181.9
147.5°	2209.5	2204.0	2235.2	2244.5	2237.2
150°	2268.5	2255.6	2285.1	2296.0	2286.9
152.5°	2318.2	2303.5	2331.0	2342.2	2329.3
155°	2366.1	2349.7	2371.7	2382.6	2368.0
157.5°	2404.7	2390.1	2406.7	2419.6	2404.7
160°	2438.0	2426.8	2438.0	2448.9	2436.0
162.5°	2467.3	2456.3	2465.5	2478.4	2461.8
165°	2493.1	2482.2	2487.6	2500.5	2487.6
167.5°	2513.4	2502.2	2507.9	2520.8	2504.2
170°	2530.0	2518.8	2522.6	2535.5	2518.8
172.5°	2541.0	2530.0	2533.7	2546.6	2530.0
175°	2550.1	2537.2	2541.0	2553.8	2535.5
177.5°	2553.8	2541.0	2542.9	2555.8	2539.2
180°	2544.7	2544.7	2544.7	2544.7	2544.7

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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	11.01	11.85	11.96	12.81	14.06	6.98	7.83	7.93	8.79	10.04
	3H	12.69	13.44	13.65	14.41	15.68	8.17	8.93	9.13	9.90	11.17
	4H	13.30	14.01	14.27	14.99	16.27	8.63	9.34	9.60	10.31	11.59
	6H	13.72	14.38	14.71	15.36	16.65	8.95	9.61	9.93	10.59	11.88
	8H	13.85	14.47	14.84	15.47	16.76	9.04	9.67	10.03	10.66	11.95
	12H	13.91	14.51	14.91	15.49	16.81	9.09	9.68	10.08	10.67	11.98
4H	2H	11.03	11.74	12.01	12.72	14.00	7.58	8.29	8.56	9.27	10.55
	3H	12.86	13.45	13.85	14.46	15.75	8.93	9.53	9.92	10.53	11.82
	4H	13.56	14.10	14.55	15.09	16.41	9.48	10.03	10.48	11.02	12.34
	6H	14.07	14.54	15.08	15.56	16.87	9.91	10.37	10.91	11.39	12.71
	8H	14.25	14.68	15.26	15.70	17.02	10.04	10.47	11.05	11.48	12.81
	12H	14.34	14.74	15.37	15.76	17.10	10.10	10.49	11.13	11.52	12.86
8H	4H	13.52	13.96	14.53	14.97	16.30	9.77	10.20	10.78	11.21	12.54
	6H	14.09	14.45	15.13	15.51	16.83	10.29	10.65	11.32	11.70	13.03
	8H	14.31	14.63	15.35	15.67	17.01	10.48	10.80	11.52	11.84	13.18
	12H	14.45	14.73	15.49	15.76	17.15	10.60	10.88	11.65	11.91	13.30
12H	4H	13.48	13.87	14.51	14.90	16.23	9.77	10.16	10.80	11.19	12.53
	6H	14.07	14.38	15.11	15.42	16.77	10.34	10.65	11.38	11.69	13.04
	8H	14.29	14.57	15.34	15.60	16.99	10.55	10.83	11.59	11.86	13.25