

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: P928004

Luminaire Tested: DFN2DIP-HX4F0-080D080US850-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928004
REPORT IS A COMBINATION OF REPORTS P900899 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D080US850-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

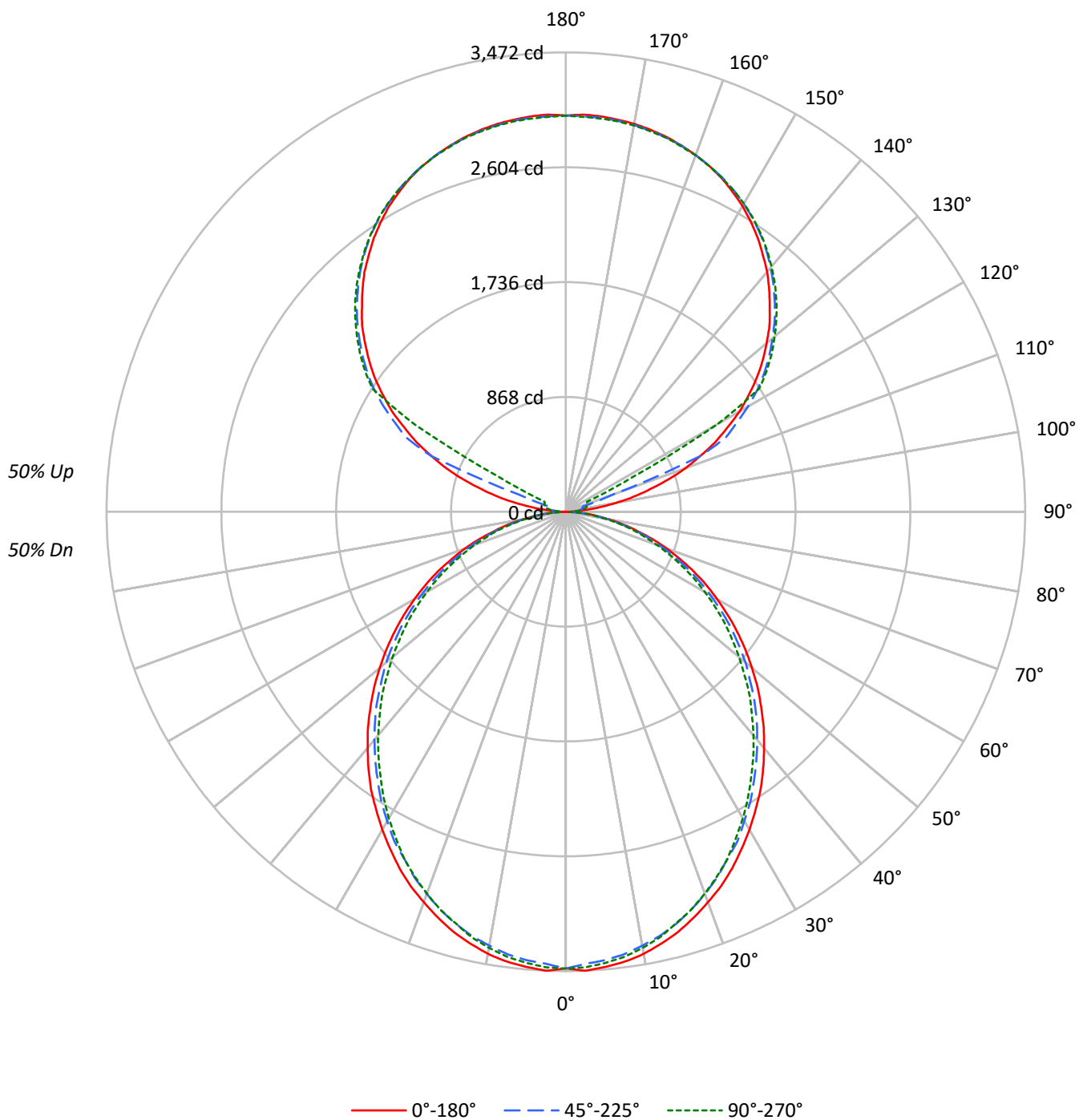
Lumens per Lamp: N/A
Luminaire Lumens: 17566.6 lumens
Efficiency: N/A
Efficacy: 130.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2567	2567	2567
5°	2571	2531	2548
10°	2551	2498	2514
15°	2513	2457	2460
20°	2463	2400	2405
25°	2413	2332	2341
30°	2350	2268	2260
35°	2290	2194	2175
40°	2217	2118	2093
45°	2143	2043	2010
50°	2063	1963	1913
55°	1979	1871	1824
60°	1885	1762	1723
65°	1782	1650	1603
70°	1650	1512	1474
75°	1468	1348	1355
80°	1249	1138	1127
85°	907	775	749

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2143 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	1.8
10°-20°	914.2	5.2
20°-30°	1343.5	7.6
30°-40°	1560.4	8.9
40°-50°	1558.4	8.9
50°-60°	1358.9	7.7
60°-70°	1004.5	5.7
70°-80°	568.4	3.2
80°-90°	155.3	0.9
90°-100°	98.7	0.6
100°-110°	368.1	2.1
110°-120°	976.2	5.6
120°-130°	1619.0	9.2
130°-140°	1719.8	9.8
140°-150°	1598.3	9.1
150°-160°	1285.0	7.3
160°-170°	828.0	4.7
170°-180°	285.0	1.6
0°-30°	2582.6	14.7
0°-40°	4143.0	23.6
0°-60°	7060.4	40.2
0°-90°	8788.5	50.0
90°-120°	1442.9	8.2
90°-150°	6380.0	36.3
90°-180°	8778.0	50.0
0°-180°	17566.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	2	26	43	54	58	16
95°	141	69	84	96	93	167
105°	659	724	132	156	165	704
115°	1246	1283	1337	334	178	1226
125°	1761	1790	1831	1846	1852	1571
135°	2180	2214	2234	2256	2251	1684
145°	2528	2526	2563	2578	2567	1581
155°	2784	2765	2791	2804	2786	1283
165°	2934	2921	2927	2942	2927	829
175°	3001	2985	2990	3005	2983	286
180°	2994	2994	2994	2994	2994	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	2.1	26.0	43.3	54.2	58.4
92.5°	54.2	45.6	52.0	56.3	58.4
95°	140.7	69.2	84.4	95.5	93.2
97.5°	253.4	75.9	110.3	117.1	119.1
100°	383.6	86.7	123.5	140.7	145.1
102.5°	526.4	522.2	127.9	151.5	158.3
105°	658.6	723.7	132.2	155.9	164.7
107.5°	812.5	866.5	136.6	160.3	169.0
110°	960.0	1005.2	379.3	162.6	171.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1098.6	1137.4	1100.7	166.7	173.4
115°	1245.7	1282.6	1336.8	333.7	177.8
117.5°	1373.6	1416.9	1453.9	1143.8	576.3
120°	1516.7	1549.1	1588.2	1614.1	1321.6
122.5°	1637.8	1672.6	1716.1	1728.9	1731.3
125°	1761.3	1789.6	1830.7	1845.9	1852.4
127.5°	1874.0	1904.4	1937.1	1958.6	1960.7
130°	1980.2	2014.9	2038.7	2062.6	2060.5
132.5°	2088.6	2116.9	2140.6	2160.1	2158.0
135°	2179.6	2214.3	2233.6	2255.6	2251.2
137.5°	2274.9	2300.8	2322.7	2344.3	2337.9
140°	2367.9	2385.5	2409.2	2428.7	2417.8
142.5°	2446.2	2461.3	2489.4	2506.7	2495.8
145°	2528.5	2526.2	2563.0	2578.2	2567.3
147.5°	2599.8	2593.4	2630.1	2641.0	2632.4
150°	2669.3	2654.1	2688.8	2701.6	2690.9
152.5°	2727.7	2710.4	2742.8	2756.0	2740.8
155°	2784.0	2764.7	2790.7	2803.6	2786.4
157.5°	2829.5	2812.3	2831.8	2847.0	2829.5
160°	2868.7	2855.6	2868.7	2881.5	2866.3
162.5°	2903.1	2890.3	2901.0	2916.2	2896.7
165°	2933.5	2920.7	2927.1	2942.2	2927.1
167.5°	2957.4	2944.3	2950.9	2966.1	2946.6
170°	2977.0	2963.8	2968.2	2983.4	2963.8
172.5°	2989.9	2977.0	2981.3	2996.5	2977.0
175°	3000.6	2985.4	2989.9	3004.9	2983.4
177.5°	3004.9	2989.9	2992.1	3007.3	2987.8
180°	2994.2	2994.2	2994.2	2994.2	2994.2

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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	10.55	11.41	11.51	12.39	13.66	10.12	10.98	11.08	11.95	13.22
	3H	12.21	12.99	13.18	13.97	15.26	11.74	12.51	12.71	13.49	14.79
	4H	12.80	13.53	13.78	14.52	15.82	12.33	13.06	13.31	14.04	15.35
	6H	13.20	13.88	14.19	14.87	16.18	12.73	13.40	13.72	14.39	15.70
	8H	13.31	13.95	14.31	14.96	16.27	12.83	13.47	13.83	14.48	15.79
	12H	13.36	13.97	14.36	14.97	16.30	12.87	13.48	13.88	14.49	15.82
4H	2H	11.01	11.75	12.00	12.73	14.03	10.67	11.40	11.66	12.39	13.69
	3H	12.88	13.49	13.88	14.51	15.82	12.49	13.10	13.48	14.11	15.43
	4H	13.60	14.15	14.60	15.16	16.50	13.19	13.75	14.20	14.76	16.09
	6H	14.11	14.59	15.13	15.62	16.96	13.70	14.18	14.72	15.21	16.55
	8H	14.26	14.71	15.28	15.74	17.09	13.85	14.30	14.87	15.32	16.67
	12H	14.34	14.74	15.37	15.78	17.14	13.91	14.32	14.95	15.36	16.71
8H	4H	13.79	14.24	14.81	15.27	16.62	13.43	13.88	14.45	14.91	16.26
	6H	14.43	14.80	15.47	15.86	17.21	14.06	14.43	15.10	15.50	16.85
	8H	14.65	14.97	15.70	16.03	17.39	14.28	14.60	15.33	15.66	17.02
	12H	14.78	15.07	15.83	16.11	17.52	14.39	14.68	15.45	15.73	17.14
12H	4H	13.78	14.18	14.82	15.22	16.58	13.43	13.83	14.46	14.87	16.23
	6H	14.46	14.78	15.51	15.83	17.20	14.10	14.43	15.15	15.48	16.85
	8H	14.70	14.99	15.75	16.03	17.44	14.34	14.63	15.40	15.67	17.09