

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: P910844

Luminaire Tested: DFN2DIP-HX3F0-080D090US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910844
REPORT IS A COMBINATION OF REPORTS P899295 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-080D090US850-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

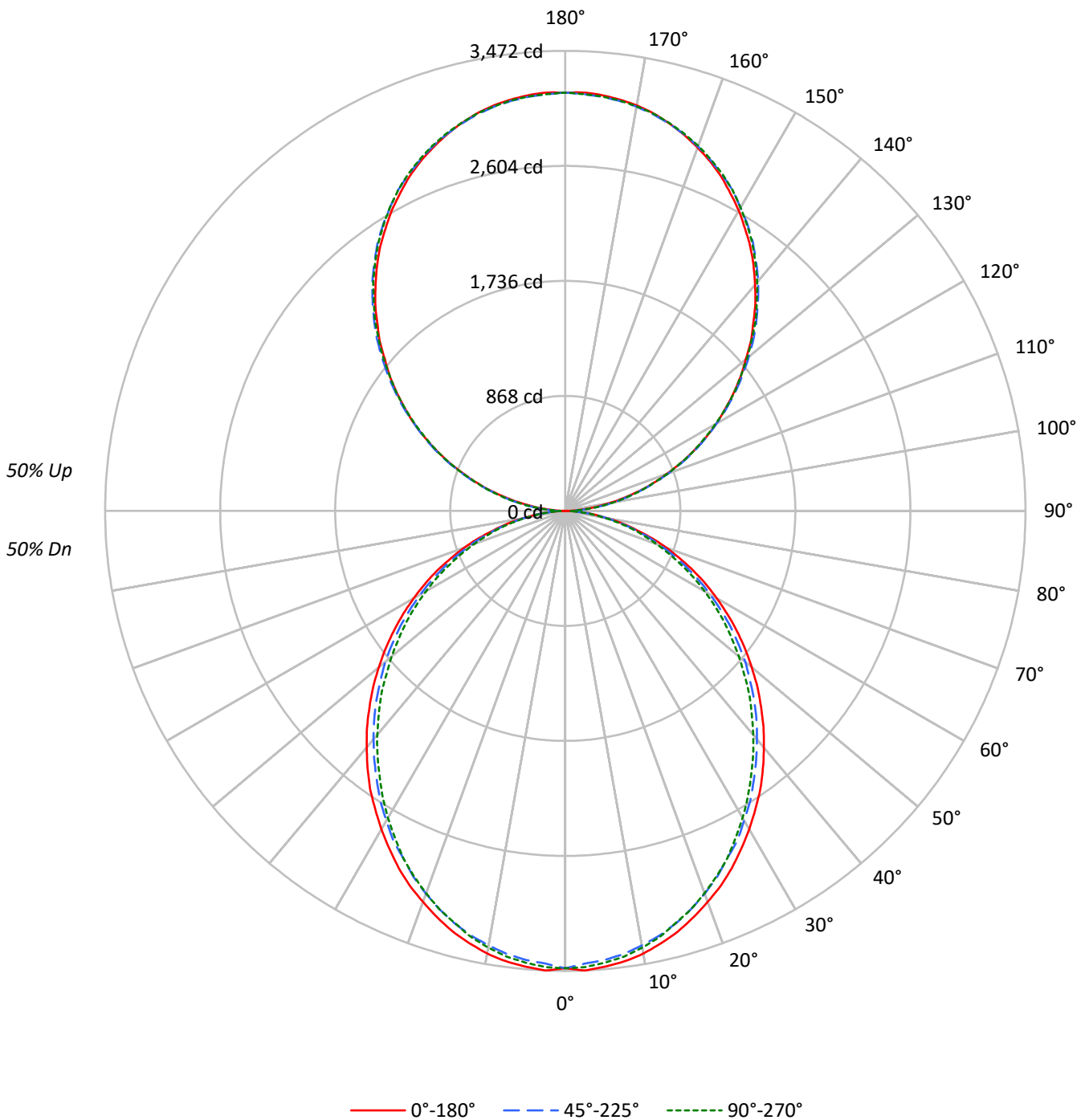
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17616.5 lumens
Efficiency: N/A
Efficacy: 116.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 151.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910844
CATALOG NUMBER: DFN2DIP-HX3F0-080D090US850-FLLFL

Luminous Intensity Polar Plot





TEST NUMBER: P910844

CATALOG NUMBER: DFN2DIP-HX3F0-080D090US850-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56	50
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47	50	48	47	42
2	89	82	75	70	82	75	70	66	64	60	57	53	51	48	44	42	40	44	42	40	35
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34	39	36	34	30
4	74	63	56	50	68	59	52	46	50	45	41	42	38	35	35	32	29	35	32	29	26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	25	31	28	25	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	26	28	25	22	28	25	22	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	22	20	26	22	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18	24	20	18	16
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	20	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3999	3999	3999
5°	4003	3940	3967
10°	3969	3884	3912
15°	3909	3818	3825
20°	3828	3726	3737
25°	3748	3617	3636
30°	3648	3516	3507
35°	3553	3396	3372
40°	3436	3275	3242
45°	3319	3154	3110
50°	3192	3026	2956
55°	3058	2879	2815
60°	2907	2705	2653
65°	2741	2523	2462
70°	2531	2303	2255
75°	2240	2038	2061
80°	1888	1699	1697
85°	1340	1125	1101

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3319 cd/sqm



TEST NUMBER: P910844

CATALOG NUMBER: DFN2DIP-HX3F0-080D090US850-FLLFLL

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	8.8
50°-60°	1358.9	7.7
60°-70°	1004.5	5.7
70°-80°	568.4	3.2
80°-90°	159.0	0.9
90°-100°	195.3	1.1
100°-110°	620.6	3.5
110°-120°	1062.1	6.0
120°-130°	1396.8	7.9
130°-140°	1567.9	8.9
140°-150°	1537.5	8.7
150°-160°	1289.7	7.3
160°-170°	855.3	4.9
170°-180°	299.0	1.7
0°-30°	2582.6	14.7
0°-40°	4143.0	23.5
0°-60°	7060.4	40.1
0°-90°	8792.2	49.9
90°-120°	1878.1	10.7
90°-150°	6380.2	36.2
90°-180°	8824.0	50.1
0°-180°	17616.5	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°	3	34	93	88	90	17
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	



TEST NUMBER: P910844

CATALOG NUMBER: DFN2DIP-HX3F0-080D090US850-FLLFLL

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°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3



TEST NUMBER: P910844

CATALOG NUMBER: DFN2DIP-HX3F0-080D090US850-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7



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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	12.03	12.89	12.99	13.87	15.14	11.61	12.47	12.56	13.44	14.71
	3H	13.69	14.46	14.66	15.44	16.74	13.22	13.99	14.19	14.97	16.27
	4H	14.27	15.00	15.25	15.99	17.29	13.80	14.53	14.78	15.52	16.82
	6H	14.66	15.34	15.66	16.33	17.64	14.19	14.87	15.19	15.86	17.17
	8H	14.76	15.41	15.76	16.41	17.73	14.29	14.94	15.29	15.94	17.26
	12H	14.81	15.42	15.81	16.42	17.76	14.33	14.94	15.34	15.95	17.28
4H	2H	12.49	13.22	13.48	14.21	15.51	12.15	12.88	13.14	13.87	15.17
	3H	14.35	14.96	15.35	15.97	17.29	13.96	14.57	14.96	15.58	16.90
	4H	15.06	15.62	16.06	16.62	17.96	14.66	15.21	15.66	16.22	17.56
	6H	15.57	16.05	16.58	17.08	18.42	15.16	15.64	16.18	16.67	18.01
	8H	15.71	16.16	16.73	17.18	18.54	15.30	15.75	16.32	16.78	18.13
	12H	15.78	16.19	16.82	17.23	18.58	15.36	15.77	16.40	16.81	18.17
8H	4H	15.25	15.70	16.27	16.72	18.08	14.89	15.34	15.91	16.37	17.72
	6H	15.87	16.24	16.92	17.31	18.66	15.51	15.89	16.56	16.95	18.30
	8H	16.09	16.42	17.14	17.47	18.84	15.72	16.05	16.78	17.10	18.47
	12H	16.22	16.50	17.27	17.55	18.96	15.84	16.12	16.89	17.17	18.58
12H	4H	15.24	15.64	16.27	16.68	18.04	14.89	15.29	15.92	16.33	17.69
	6H	15.90	16.23	16.95	17.28	18.65	15.55	15.88	16.60	16.93	18.30
	8H	16.14	16.43	17.19	17.47	18.88	15.78	16.07	16.84	17.12	18.53