

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: P910797

Luminaire Tested: DFN2DIP-HX3F0-060D090US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910797
REPORT IS A COMBINATION OF REPORTS P899292 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-060D090US850-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

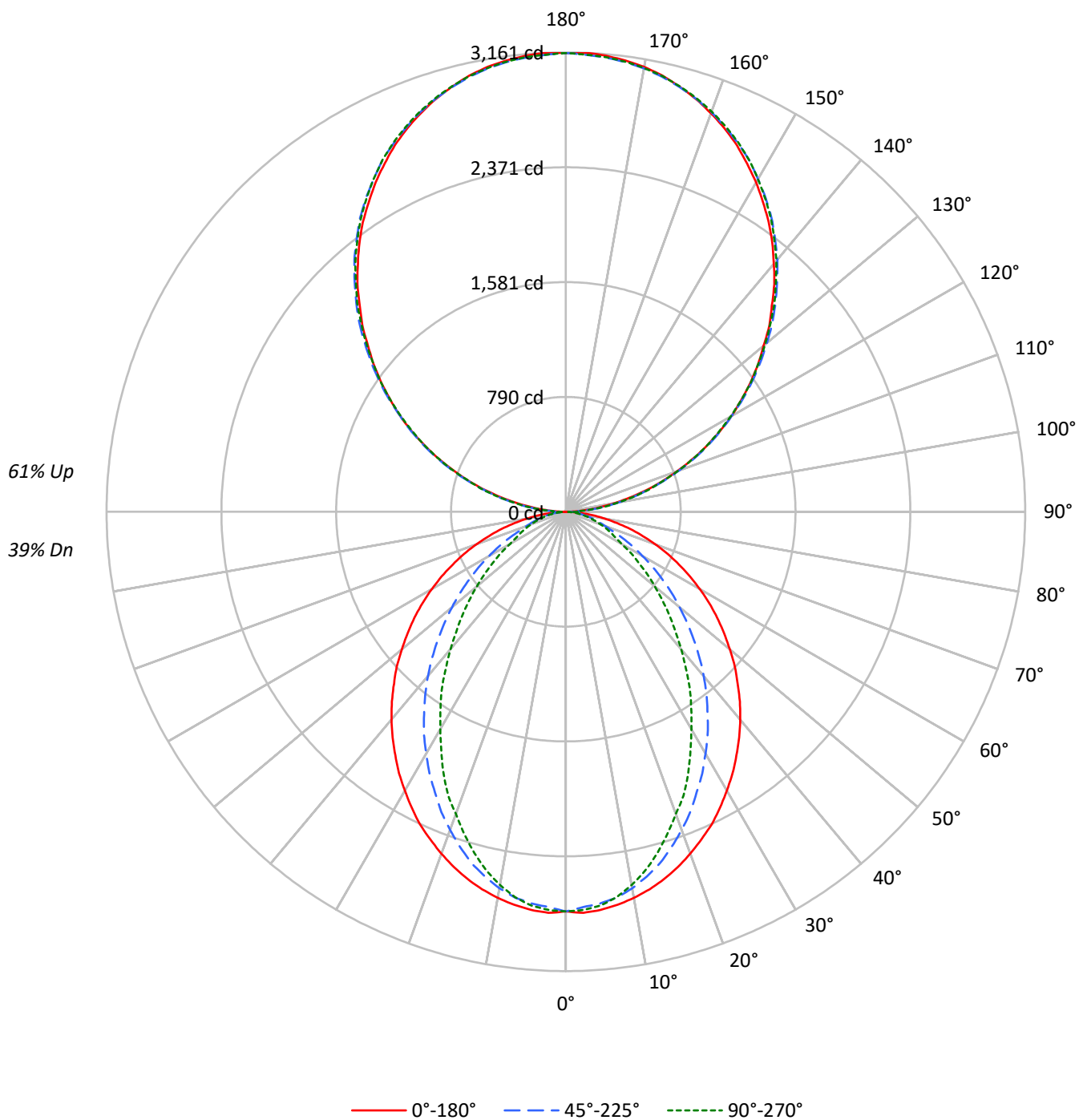
Lumens per Lamp: N/A
Luminaire Lumens: 14489.1 lumens
Efficiency: N/A
Efficacy: 113.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 127.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910797

CATALOG NUMBER: DFN2DIP-HX3F0-060D090US850-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P910797

CATALOG NUMBER: DFN2DIP-HX3F0-060D090US850-RLLFLL

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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3186	3186	3186
5°	3189	3133	3153
10°	3156	3069	3049
15°	3111	2966	2889
20°	3052	2824	2693
25°	2992	2665	2504
30°	2911	2502	2264
35°	2833	2328	2054
40°	2752	2148	1813
45°	2659	1948	1595
50°	2562	1747	1382
55°	2461	1532	1177
60°	2344	1307	967
65°	2209	1079	869
70°	2045	867	783
75°	1840	759	709
80°	1542	630	609
85°	1053	410	447

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2970 cd/sqm

TEST NUMBER: P910797

CATALOG NUMBER: DFN2DIP-HX3F0-060D090US850-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.7	1.8
10°-20°	707.6	4.9
20°-30°	993.4	6.9
30°-40°	1082.8	7.5
40°-50°	995.2	6.9
50°-60°	781.6	5.4
60°-70°	508.8	3.5
70°-80°	261.9	1.8
80°-90°	75.8	0.5
90°-100°	195.3	1.3
100°-110°	620.6	4.3
110°-120°	1062.1	7.3
120°-130°	1396.8	9.6
130°-140°	1567.9	10.8
140°-150°	1537.5	10.6
150°-160°	1289.7	8.9
160°-170°	855.3	5.9
170°-180°	299.0	2.1
0°-30°	1958.7	13.5
0°-40°	3041.5	21.0
0°-60°	4818.4	33.3
0°-90°	5664.9	39.1
90°-120°	1878.1	13.0
90°-150°	6380.2	44.0
90°-180°	8824.0	60.9
0°-180°	14489.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2738	2705	2728	2720	261
15°	2616	2588	2504	2456	2432	737
25°	2374	2295	2130	2028	1991	1092
35°	2046	1919	1700	1543	1488	1281
45°	1672	1506	1244	1068	1008	1292
55°	1272	1078	809	660	612	1136
65°	859	657	433	349	341	851
75°	458	284	199	182	179	484
85°	107	55	47	47	47	123
90°	3	34	93	88	90	14
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: P910797

CATALOG NUMBER: DFN2DIP-HX3F0-060D090US850-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.1	2750.1	2750.1	2750.1	2750.1
2.5°	2762.5	2750.1	2722.6	2747.7	2742.7
5°	2750.1	2737.7	2705.2	2727.7	2720.3
7.5°	2727.7	2712.8	2678.0	2687.8	2675.4
10°	2697.8	2680.3	2630.8	2623.1	2608.3
12.5°	2660.6	2638.1	2570.8	2556.0	2528.5
15°	2615.7	2588.2	2503.7	2456.4	2431.6
17.5°	2563.5	2523.5	2419.0	2364.3	2324.5
20°	2503.7	2453.8	2329.5	2267.4	2212.5
22.5°	2439.0	2381.7	2237.3	2152.8	2115.5
25°	2374.4	2294.6	2130.4	2028.5	1991.0
27.5°	2297.3	2212.5	2030.8	1913.8	1856.6
30°	2215.1	2120.3	1921.2	1794.5	1727.2
32.5°	2135.4	2020.8	1817.0	1667.5	1605.2
35°	2045.9	1918.9	1700.0	1543.1	1488.2
37.5°	1958.7	1821.6	1590.4	1418.5	1356.4
40°	1866.6	1717.4	1475.7	1299.1	1234.4
42.5°	1772.1	1612.8	1361.4	1177.1	1115.1
45°	1672.5	1505.6	1244.5	1067.5	1007.9
47.5°	1578.0	1401.3	1132.5	955.6	901.0
50°	1473.4	1296.8	1022.9	851.0	799.0
52.5°	1371.2	1184.5	918.4	754.1	706.9
55°	1271.7	1077.6	808.8	659.6	612.3
57.5°	1169.8	970.6	711.9	572.5	532.5
60°	1065.2	866.1	609.7	483.0	443.0
62.5°	963.3	764.2	522.6	403.2	383.4
65°	858.7	657.0	433.1	348.6	340.9
67.5°	759.1	557.4	348.6	306.1	298.7
70°	654.5	460.5	288.6	263.8	253.7
72.5°	555.1	370.7	241.3	221.6	216.5
75°	457.9	283.6	199.1	181.7	179.3
77.5°	361.0	201.5	156.8	146.8	141.8
80°	271.2	144.4	119.3	109.6	109.6
82.5°	189.1	97.1	82.1	77.1	77.1
85°	106.9	54.7	47.2	47.2	47.2
87.5°	39.9	19.9	19.9	17.4	17.4
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: P910797

CATALOG NUMBER: DFN2DIP-HX3F0-060D090US850-RLLFLL

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	10.02	10.76	11.07	11.82	13.24	5.99	6.74	7.04	7.79	9.21
	3H	11.68	12.35	12.74	13.41	14.85	7.17	7.84	8.23	8.90	10.34
	4H	12.28	12.91	13.35	13.98	15.42	7.61	8.25	8.69	9.31	10.76
	6H	12.69	13.27	13.77	14.34	15.80	7.93	8.51	9.01	9.58	11.03
	8H	12.81	13.37	13.90	14.45	15.90	8.01	8.57	9.10	9.65	11.10
	12H	12.87	13.39	13.96	14.47	15.94	8.05	8.58	9.14	9.65	11.13
4H	2H	10.02	10.66	11.10	11.72	13.17	6.57	7.21	7.65	8.27	9.72
	3H	11.84	12.36	12.92	13.45	14.91	7.91	8.44	9.00	9.53	10.99
	4H	12.52	13.00	13.61	14.08	15.56	8.45	8.94	9.54	10.02	11.50
	6H	13.02	13.44	14.12	14.54	16.01	8.86	9.28	9.96	10.38	11.85
	8H	13.19	13.58	14.29	14.67	16.16	8.99	9.37	10.09	10.47	11.96
	12H	13.28	13.63	14.39	14.74	16.23	9.05	9.39	10.16	10.50	12.00
8H	4H	12.48	12.87	13.58	13.96	15.45	8.72	9.11	9.82	10.20	11.69
	6H	13.03	13.35	14.16	14.49	15.98	9.23	9.55	10.35	10.69	12.17
	8H	13.25	13.52	14.37	14.64	16.15	9.42	9.70	10.54	10.82	12.32
	12H	13.37	13.62	14.51	14.74	16.28	9.53	9.77	10.66	10.89	12.43
12H	4H	12.43	12.78	13.54	13.89	15.38	8.72	9.07	9.84	10.18	11.67
	6H	13.01	13.29	14.14	14.41	15.91	9.28	9.56	10.40	10.68	12.18
	8H	13.22	13.47	14.35	14.58	16.13	9.48	9.73	10.61	10.84	12.38

END OF REPORT