

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: P927698

Luminaire Tested: DFN2DIP-HX4F0-080D120US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927698
REPORT IS A COMBINATION OF REPORTS P900972 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D120US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

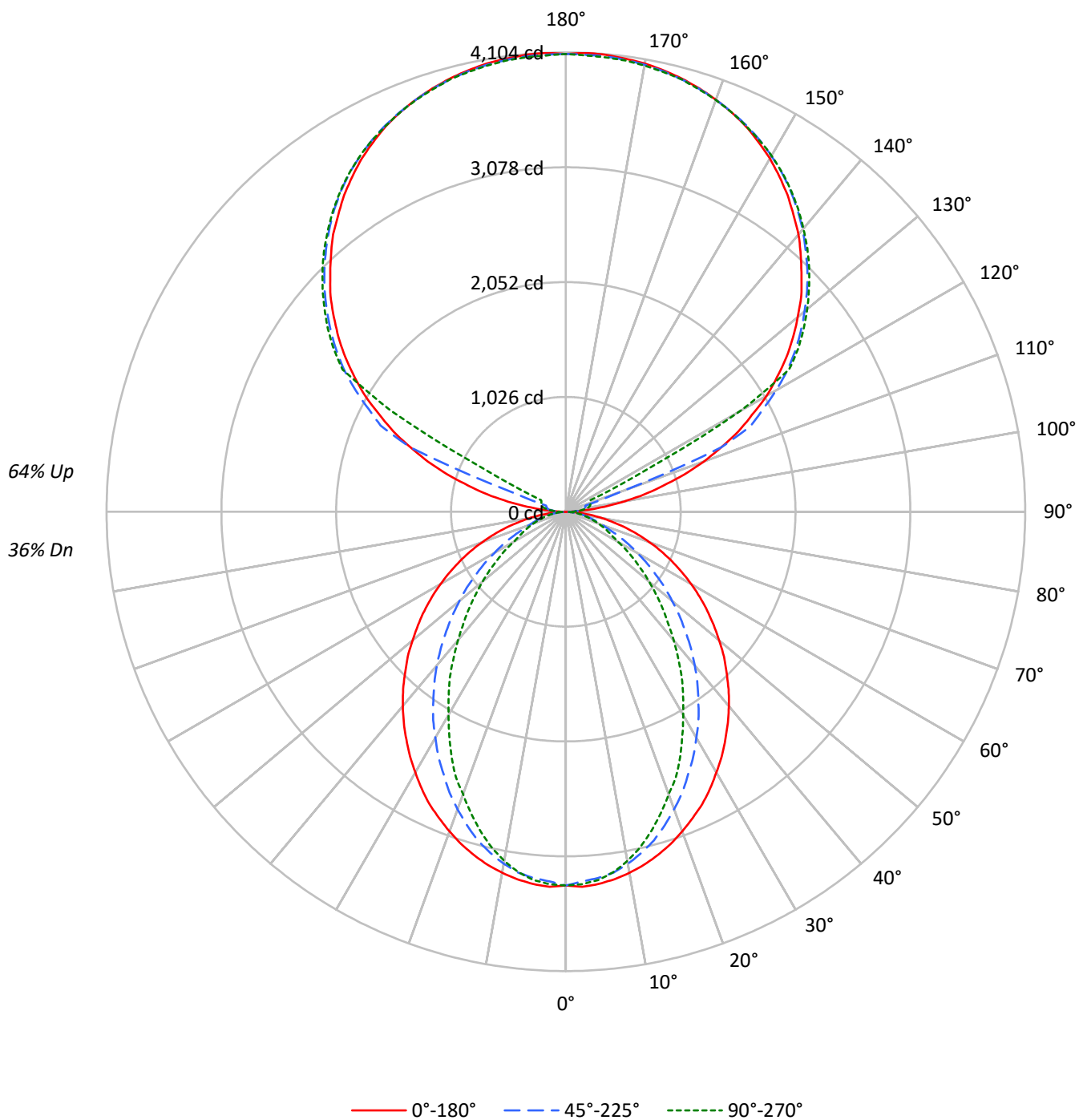
Lumens per Lamp: N/A
Luminaire Lumens: 18863.1 lumens
Efficiency: N/A
Efficacy: 109.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.6
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2483	2483	2483
5°	2487	2443	2459
10°	2462	2396	2379
15°	2429	2317	2256
20°	2384	2208	2104
25°	2338	2086	1957
30°	2277	1960	1771
35°	2217	1826	1608
40°	2155	1686	1421
45°	2084	1532	1251
50°	2011	1376	1086
55°	1934	1209	926
60°	1845	1034	763
65°	1743	856	686
70°	1619	691	622
75°	1463	610	566
80°	1238	512	491
85°	866	343	370

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2101 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	1.7
10°-20°	859.0	4.6
20°-30°	1206.0	6.4
30°-40°	1314.6	7.0
40°-50°	1208.3	6.4
50°-60°	948.9	5.0
60°-70°	617.7	3.3
70°-80°	318.0	1.7
80°-90°	88.4	0.5
90°-100°	134.8	0.7
100°-110°	502.7	2.7
110°-120°	1333.2	7.1
120°-130°	2211.3	11.7
130°-140°	2348.9	12.5
140°-150°	2183.0	11.6
150°-160°	1755.1	9.3
160°-170°	1130.9	6.0
170°-180°	389.2	2.1
0°-30°	2378.0	12.6
0°-40°	3692.6	19.6
0°-60°	5849.9	31.0
0°-90°	6873.8	36.4
90°-120°	1970.8	10.4
90°-150°	8714.0	46.2
90°-180°	11989.0	63.6
0°-180°	18863.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2586	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2030	1828	1511	1296	1224	1568
55°	1544	1308	982	801	743	1380
65°	1042	798	526	423	414	1033
75°	556	344	242	220	218	588
85°	130	66	57	57	57	149
90°	3	35	59	74	80	18
95°	192	94	115	130	127	228
105°	900	988	181	213	225	961
115°	1701	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3024	3051	3081	3075	2300
145°	3454	3450	3501	3521	3506	2160
155°	3802	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4104	4075	390
180°	4090	4090	4090	4090	4090	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3338.8	3338.8	3338.8	3338.8	3338.8
2.5°	3353.8	3338.8	3305.5	3335.9	3329.8
5°	3338.8	3323.8	3284.3	3311.5	3302.6
7.5°	3311.5	3293.6	3251.3	3263.2	3248.0
10°	3275.3	3254.2	3193.9	3184.6	3166.6
12.5°	3230.1	3202.9	3121.1	3103.1	3069.8
15°	3175.6	3142.3	3039.7	2982.3	2952.2
17.5°	3112.1	3063.7	2936.8	2870.5	2822.0
20°	3039.7	2979.1	2828.1	2752.8	2686.1
22.5°	2961.1	2891.6	2716.3	2613.7	2568.4
25°	2882.6	2785.8	2586.4	2462.7	2417.2
27.5°	2789.0	2686.1	2465.5	2323.5	2254.0
30°	2689.3	2574.2	2332.5	2178.6	2096.8
32.5°	2592.5	2453.4	2205.9	2024.4	1948.8
35°	2483.8	2329.6	2063.8	1873.5	1806.7
37.5°	2378.0	2211.7	1930.8	1722.1	1646.8
40°	2266.2	2085.0	1791.7	1577.2	1498.6
42.5°	2151.4	1958.1	1652.8	1429.2	1353.7
45°	2030.5	1827.9	1510.9	1296.1	1223.7
47.5°	1915.8	1701.3	1374.9	1160.2	1093.8
50°	1788.8	1574.4	1242.0	1033.2	970.0
52.5°	1664.8	1438.1	1114.9	915.6	858.2
55°	1543.9	1308.3	981.9	800.8	743.4
57.5°	1420.2	1178.4	864.3	695.0	646.6
60°	1293.1	1051.5	740.2	586.3	537.9
62.5°	1169.4	927.7	634.5	489.6	465.5
65°	1042.5	797.5	525.7	423.2	413.8
67.5°	921.6	676.8	423.2	371.5	362.6
70°	794.7	559.1	350.4	320.2	308.1
72.5°	673.8	450.1	293.0	269.0	262.9
75°	555.9	344.3	241.7	220.5	217.7
77.5°	438.3	244.6	190.4	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	117.9	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	76.9	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.4	168.6	192.2	198.2
102.5°	719.0	713.3	174.6	207.0	216.1
105°	899.5	988.5	180.7	213.0	224.9
107.5°	1109.7	1183.5	186.6	218.9	230.8
110°	1311.0	1372.9	517.9	222.1	233.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.5	1553.5	1503.3	227.7	236.8
115°	1701.4	1751.7	1825.8	455.7	242.9
117.5°	1876.1	1935.2	1985.8	1562.3	787.1
120°	2071.5	2115.7	2169.2	2204.7	1805.1
122.5°	2237.0	2284.5	2343.8	2361.4	2364.5
125°	2405.6	2444.3	2500.6	2521.3	2530.1
127.5°	2559.5	2601.0	2645.7	2675.2	2678.0
130°	2704.6	2752.1	2784.4	2817.1	2814.3
132.5°	2852.6	2891.3	2923.6	2950.3	2947.5
135°	2977.0	3024.5	3050.8	3080.7	3074.7
137.5°	3107.1	3142.5	3172.4	3201.9	3193.1
140°	3234.3	3258.1	3290.4	3317.2	3302.4
142.5°	3341.0	3361.8	3400.1	3423.6	3408.9
145°	3453.5	3450.4	3500.6	3521.4	3506.5
147.5°	3550.9	3542.1	3592.4	3607.1	3595.5
150°	3645.7	3625.0	3672.4	3690.0	3675.3
152.5°	3725.5	3701.9	3746.3	3764.1	3743.4
155°	3802.4	3776.0	3811.6	3829.2	3805.6
157.5°	3864.6	3841.1	3867.8	3888.5	3864.6
160°	3918.0	3900.2	3918.0	3935.6	3914.9
162.5°	3965.2	3947.6	3962.4	3983.1	3956.4
165°	4006.6	3989.0	3997.8	4018.6	3997.8
167.5°	4039.3	4021.3	4030.5	4051.2	4024.6
170°	4066.0	4048.1	4054.0	4074.7	4048.1
172.5°	4083.5	4066.0	4072.0	4092.7	4066.0
175°	4098.3	4077.6	4083.5	4104.3	4074.7
177.5°	4104.3	4083.5	4086.8	4107.5	4080.8
180°	4089.6	4089.6	4089.6	4089.6	4089.6

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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	8.89	9.62	9.96	10.69	12.15	4.87	5.60	5.94	6.66	8.12
	3H	10.56	11.22	11.64	12.29	13.77	6.05	6.70	7.13	7.78	9.25
	4H	11.17	11.79	12.26	12.87	14.34	6.49	7.11	7.59	8.19	9.67
	6H	11.58	12.15	12.69	13.24	14.73	6.81	7.38	7.91	8.46	9.96
	8H	11.71	12.25	12.81	13.35	14.83	6.90	7.44	8.01	8.54	10.03
	12H	11.77	12.28	12.88	13.37	14.88	6.94	7.46	8.05	8.55	10.06
4H	2H	8.90	9.52	10.00	10.60	12.08	5.45	6.07	6.55	7.15	8.63
	3H	10.72	11.23	11.82	12.34	13.83	6.79	7.31	7.90	8.41	9.90
	4H	11.41	11.88	12.52	12.98	14.49	7.34	7.81	8.45	8.91	10.42
	6H	11.92	12.32	13.04	13.44	14.95	7.75	8.16	8.87	9.28	10.78
	8H	12.09	12.47	13.21	13.58	15.10	7.88	8.26	9.00	9.37	10.89
	12H	12.18	12.53	13.32	13.65	15.18	7.94	8.28	9.08	9.41	10.93
8H	4H	11.37	11.75	12.49	12.86	14.38	7.61	7.99	8.73	9.10	10.62
	6H	11.93	12.24	13.07	13.40	14.92	8.13	8.44	9.27	9.59	11.11
	8H	12.15	12.42	13.29	13.56	15.09	8.32	8.59	9.46	9.73	11.26
	12H	12.29	12.52	13.43	13.65	15.23	8.44	8.68	9.58	9.81	11.38
12H	4H	11.32	11.66	12.45	12.78	14.31	7.61	7.95	8.74	9.08	10.60
	6H	11.91	12.18	13.05	13.31	14.85	8.18	8.45	9.32	9.58	11.12
	8H	12.13	12.36	13.27	13.49	15.07	8.38	8.62	9.53	9.75	11.33