

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: P927694

Luminaire Tested: DFN2DIP-HX4F0-080D110US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927694
REPORT IS A COMBINATION OF REPORTS P900954 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US840-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

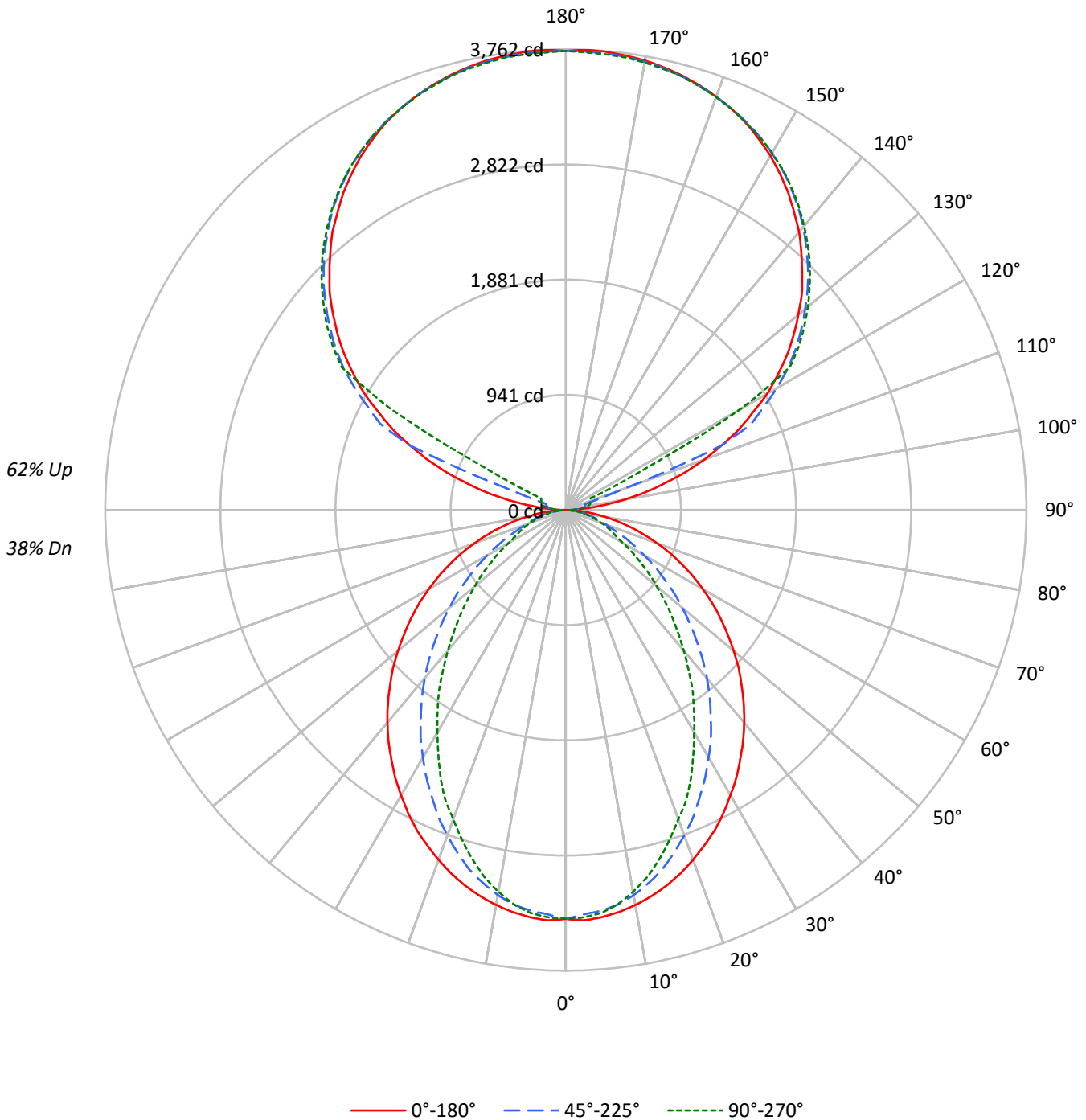
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17863.3 lumens
Efficiency: N/A
Efficacy: 109.0 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): 163.9
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			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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	38			
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33			
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34	28			
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29	24			
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25	21			
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22	19			
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20	17			
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18	15			
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16	13			
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12			
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11			

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: 0°
 Vertical Angle: 45°
 Luminance: 2084 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	1.8
10°-20°	859.0	4.8
20°-30°	1206.0	6.8
30°-40°	1314.6	7.4
40°-50°	1208.3	6.8
50°-60°	948.9	5.3
60°-70°	617.7	3.5
70°-80°	318.0	1.8
80°-90°	87.8	0.5
90°-100°	123.6	0.7
100°-110°	460.8	2.6
110°-120°	1222.1	6.8
120°-130°	2027.0	11.3
130°-140°	2153.1	12.1
140°-150°	2001.1	11.2
150°-160°	1608.8	9.0
160°-170°	1036.7	5.8
170°-180°	356.8	2.0
0°-30°	2378.0	13.3
0°-40°	3692.6	20.7
0°-60°	5849.9	32.7
0°-90°	6873.2	38.5
90°-120°	1806.5	10.1
90°-150°	7987.8	44.7
90°-180°	10990.0	61.5
0°-180°	17863.3	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	32	54	68	73	17
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1535
125°	2205	2241	2292	2311	2319	1967
135°	2729	2772	2796	2824	2818	2108
145°	3166	3163	3209	3228	3214	1980
155°	3486	3461	3494	3510	3488	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3743	3762	3735	358
180°	3749	3749	3749	3749	3749	



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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°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.1
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.8	160.1	189.7	198.1
105°	824.6	906.1	165.6	195.2	206.2
107.5°	1017.3	1084.8	171.1	200.6	211.7
110°	1201.8	1258.5	474.8	203.6	214.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.4	1424.0	1378.0	208.7	217.1
115°	1559.6	1605.7	1673.7	417.8	222.6
117.5°	1719.8	1773.9	1820.3	1432.1	721.5
120°	1898.8	1939.4	1988.4	2020.9	1654.7
122.5°	2050.6	2094.0	2148.5	2164.6	2167.5
125°	2205.2	2240.6	2292.1	2311.1	2319.2
127.5°	2346.3	2384.2	2425.1	2452.2	2454.8
130°	2479.3	2522.8	2552.4	2582.4	2579.8
132.5°	2614.9	2650.3	2680.0	2704.4	2701.9
135°	2729.0	2772.4	2796.5	2824.0	2818.5
137.5°	2848.1	2880.7	2908.0	2935.1	2927.0
140°	2964.8	2986.6	3016.3	3040.7	3027.2
142.5°	3062.6	3081.6	3116.7	3138.4	3124.8
145°	3165.7	3162.8	3208.8	3227.9	3214.4
147.5°	3255.0	3246.9	3293.0	3306.5	3295.9
150°	3341.9	3322.9	3366.4	3382.5	3369.0
152.5°	3415.0	3393.4	3434.0	3450.5	3431.5
155°	3485.6	3461.4	3493.9	3510.1	3488.5
157.5°	3542.6	3521.0	3545.5	3564.5	3542.6
160°	3591.6	3575.1	3591.6	3607.6	3588.6
162.5°	3634.7	3618.6	3632.1	3651.1	3626.7
165°	3672.7	3656.6	3664.7	3683.6	3664.7
167.5°	3702.6	3686.3	3694.7	3713.6	3689.2
170°	3727.2	3710.7	3716.2	3735.3	3710.7
172.5°	3743.2	3727.2	3732.6	3751.6	3727.2
175°	3756.8	3737.8	3743.2	3762.3	3735.3
177.5°	3762.3	3743.2	3746.2	3765.1	3740.7
180°	3748.8	3748.8	3748.8	3748.8	3748.8



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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	9.13	9.87	10.18	10.93	12.36	5.10	5.84	6.16	6.90	8.33
	3H	10.80	11.46	11.86	12.53	13.98	6.28	6.95	7.35	8.01	9.46
	4H	11.40	12.03	12.48	13.10	14.56	6.73	7.36	7.81	8.43	9.88
	6H	11.82	12.40	12.91	13.47	14.94	7.05	7.63	8.14	8.70	10.17
	8H	11.95	12.50	13.04	13.58	15.04	7.14	7.69	8.23	8.78	10.24
	12H	12.01	12.53	13.10	13.61	15.09	7.18	7.70	8.27	8.78	10.27
4H	2H	9.13	9.77	10.22	10.83	12.29	5.69	6.32	6.77	7.38	8.84
	3H	10.96	11.48	12.05	12.58	14.04	7.03	7.55	8.12	8.65	10.11
	4H	11.65	12.13	12.74	13.21	14.70	7.58	8.06	8.67	9.14	10.63
	6H	12.16	12.57	13.26	13.68	15.16	7.99	8.40	9.10	9.51	10.99
	8H	12.33	12.72	13.44	13.82	15.31	8.12	8.50	9.22	9.60	11.10
	12H	12.42	12.77	13.54	13.88	15.39	8.18	8.53	9.30	9.64	11.14
8H	4H	11.61	11.99	12.71	13.09	14.59	7.85	8.23	8.95	9.33	10.83
	6H	12.17	12.49	13.30	13.63	15.13	8.37	8.68	9.49	9.83	11.32
	8H	12.39	12.67	13.52	13.79	15.30	8.56	8.84	9.69	9.96	11.47
	12H	12.53	12.77	13.66	13.89	15.44	8.68	8.92	9.81	10.04	11.59
12H	4H	11.56	11.90	12.68	13.02	14.52	7.85	8.20	8.97	9.31	10.81
	6H	12.15	12.43	13.28	13.55	15.06	8.42	8.69	9.55	9.82	11.33
	8H	12.37	12.61	13.50	13.73	15.28	8.63	8.87	9.76	9.99	11.54