

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: P927754

Luminaire Tested: DFN2DIP-HX4F0-100D080US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927754
REPORT IS A COMBINATION OF REPORTS P900904 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D080US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

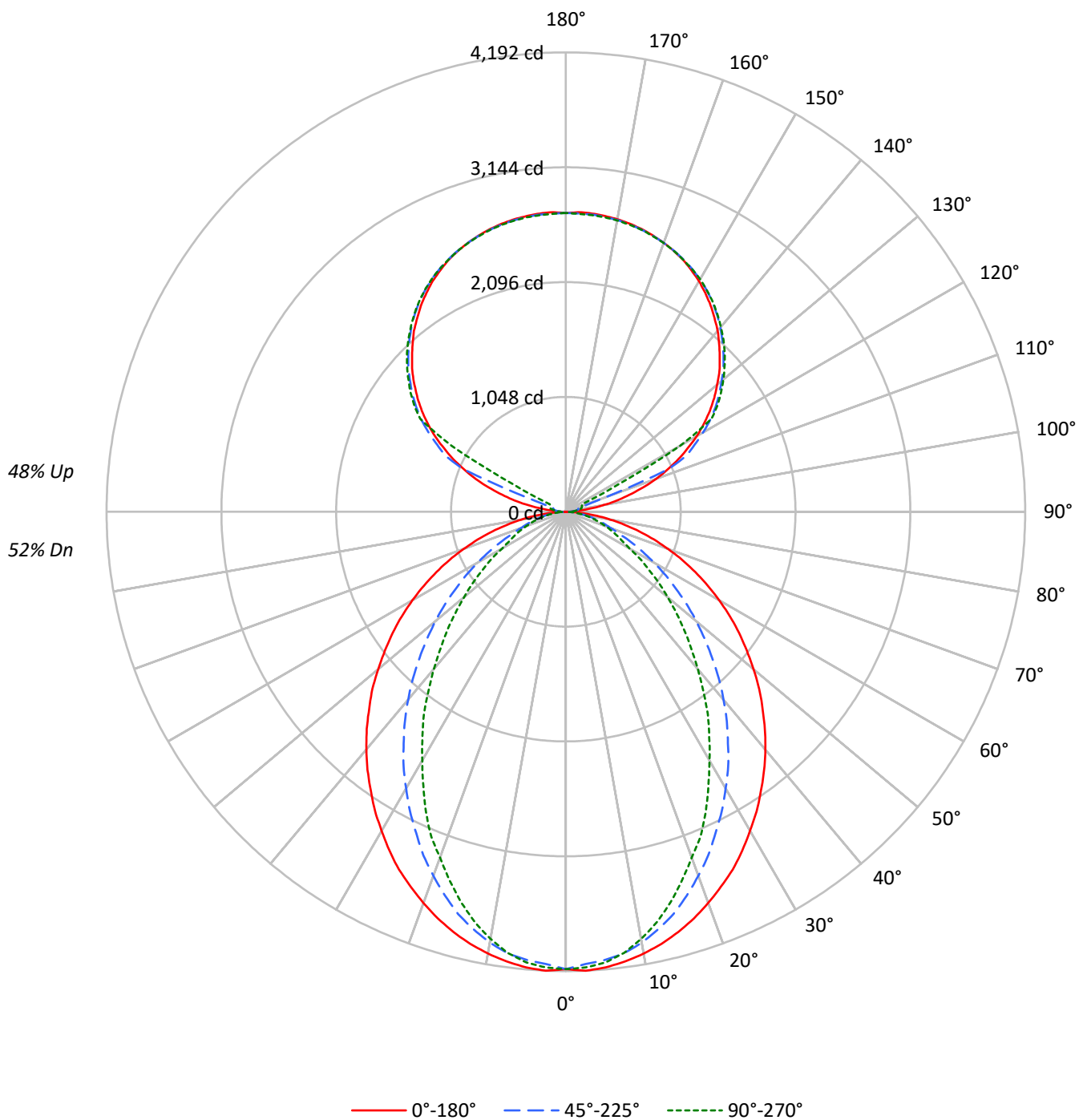
Lumens per Lamp: N/A
Luminaire Lumens: 16580.9 lumens
Efficiency: N/A
Efficacy: 105.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 157.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58
1	99	95	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43
3	83	74	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	35	32
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28
6	65	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23
8	56	44	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3103	3103	3103
5°	3108	3054	3074
10°	3078	2995	2974
15°	3036	2896	2819
20°	2980	2760	2630
25°	2923	2607	2447
30°	2846	2451	2214
35°	2771	2282	2010
40°	2694	2108	1776
45°	2605	1915	1564
50°	2513	1719	1357
55°	2417	1511	1158
60°	2306	1293	953
65°	2178	1071	858
70°	2023	864	777
75°	1829	762	707
80°	1547	641	614
85°	1082	429	462

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2605 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.1	2.4
10°-20°	1073.8	6.5
20°-30°	1507.5	9.1
30°-40°	1643.3	9.9
40°-50°	1510.4	9.1
50°-60°	1186.2	7.2
60°-70°	772.1	4.7
70°-80°	397.4	2.4
80°-90°	106.3	0.6
90°-100°	89.9	0.5
100°-110°	335.1	2.0
110°-120°	888.8	5.4
120°-130°	1474.2	8.9
130°-140°	1565.9	9.4
140°-150°	1455.3	8.8
150°-160°	1170.1	7.1
160°-170°	754.0	4.5
170°-180°	259.5	1.6
0°-30°	2972.4	17.9
0°-40°	4615.8	27.8
0°-60°	7312.3	44.1
0°-90°	8588.1	51.8
90°-120°	1313.9	7.9
90°-150°	5809.3	35.0
90°-180°	7993.0	48.2
0°-180°	16580.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4174	4174	4174	4174	4174	
5°	4174	4155	4105	4140	4128	396
15°	3970	3928	3800	3728	3690	1119
25°	3603	3482	3233	3078	3021	1657
35°	3105	2912	2580	2342	2258	1943
45°	2538	2285	1889	1620	1530	1960
55°	1930	1635	1227	1001	929	1724
65°	1303	997	657	529	517	1292
75°	695	430	302	276	272	735
85°	162	83	72	72	72	186
90°	2	24	39	49	53	16
95°	128	63	77	87	85	152
105°	600	659	120	142	150	641
115°	1134	1168	1217	304	162	1117
125°	1604	1630	1667	1681	1687	1430
135°	1985	2016	2034	2054	2050	1533
145°	2302	2300	2334	2348	2338	1440
155°	2535	2517	2541	2553	2537	1168
165°	2671	2659	2665	2679	2665	755
175°	2732	2718	2722	2736	2717	260
180°	2726	2726	2726	2726	2726	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4173.5	4173.5	4173.5	4173.5	4173.5
2.5°	4192.3	4173.5	4131.8	4169.9	4162.3
5°	4173.5	4154.6	4105.3	4139.5	4128.2
7.5°	4139.5	4117.0	4064.0	4078.9	4060.1
10°	4094.1	4067.7	3992.3	3980.7	3958.3
12.5°	4037.7	4003.6	3901.4	3878.9	3837.2
15°	3969.5	3927.8	3799.6	3727.9	3690.2
17.5°	3890.2	3829.7	3671.0	3588.0	3527.5
20°	3799.6	3723.8	3535.1	3441.0	3357.6
22.5°	3701.4	3614.5	3395.3	3267.1	3210.6
25°	3603.3	3482.3	3233.0	3078.3	3021.4
27.5°	3486.2	3357.6	3081.9	2904.4	2817.4
30°	3361.6	3217.7	2915.6	2723.3	2621.1
32.5°	3240.7	3066.7	2757.4	2530.6	2435.9
35°	3104.7	2912.1	2579.8	2341.8	2258.4
37.5°	2972.5	2764.5	2413.5	2152.7	2058.5
40°	2832.7	2606.3	2239.6	1971.5	1873.4
42.5°	2689.2	2447.6	2066.2	1786.4	1692.2
45°	2538.1	2284.9	1888.6	1620.1	1529.5
47.5°	2394.7	2126.6	1718.7	1450.2	1367.3
50°	2236.0	1967.9	1552.4	1291.5	1212.6
52.5°	2080.9	1797.6	1393.7	1144.4	1072.7
55°	1929.8	1635.4	1227.4	1001.0	929.2
57.5°	1775.2	1473.0	1080.4	868.7	808.2
60°	1616.5	1314.4	925.3	732.9	672.4
62.5°	1461.8	1159.7	793.0	611.9	581.8
65°	1303.1	997.0	657.2	528.9	517.3
67.5°	1152.1	845.9	528.9	464.4	453.2
70°	993.3	698.9	438.0	400.3	385.1
72.5°	842.3	562.6	366.3	336.2	328.6
75°	694.8	430.4	302.1	275.7	272.0
77.5°	547.8	305.8	238.0	222.8	215.2
80°	411.5	219.2	181.2	166.3	166.3
82.5°	286.9	147.4	124.6	117.0	117.0
85°	162.3	82.9	71.7	71.7	71.7
87.5°	60.5	30.1	30.1	26.5	26.5
90°	1.9	23.6	39.4	49.4	53.2
92.5°	49.4	41.5	47.4	51.3	53.2
95°	128.1	63.0	76.8	86.9	84.8
97.5°	230.7	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.1	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.7	659.0	120.4	142.0	150.0
107.5°	739.8	789.0	124.4	145.9	153.9
110°	874.1	915.3	345.4	148.0	155.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1000.3	1035.7	1002.2	151.8	157.9
115°	1134.3	1167.8	1217.2	303.8	161.9
117.5°	1250.7	1290.1	1323.8	1041.5	524.8
120°	1381.0	1410.5	1446.1	1469.8	1203.4
122.5°	1491.3	1523.0	1562.6	1574.3	1576.4
125°	1603.8	1629.5	1667.0	1680.8	1686.7
127.5°	1706.4	1734.0	1763.8	1783.4	1785.3
130°	1803.1	1834.7	1856.3	1878.1	1876.2
132.5°	1901.8	1927.5	1949.1	1966.9	1965.0
135°	1984.7	2016.3	2033.8	2053.8	2049.8
137.5°	2071.4	2095.0	2114.9	2134.6	2128.8
140°	2156.1	2172.1	2193.7	2211.5	2201.6
142.5°	2227.4	2241.2	2266.7	2282.5	2272.6
145°	2302.3	2300.2	2333.7	2347.6	2337.7
147.5°	2367.3	2361.4	2394.8	2404.7	2397.0
150°	2430.5	2416.7	2448.3	2460.0	2450.2
152.5°	2483.7	2468.0	2497.4	2509.5	2495.6
155°	2535.0	2517.4	2541.1	2552.8	2537.1
157.5°	2576.4	2560.8	2578.5	2592.4	2576.4
160°	2612.0	2600.1	2612.0	2623.8	2609.9
162.5°	2643.5	2631.7	2641.5	2655.4	2637.6
165°	2671.1	2659.4	2665.3	2679.0	2665.3
167.5°	2692.8	2680.9	2687.0	2700.8	2683.0
170°	2710.7	2698.7	2702.7	2716.6	2698.7
172.5°	2722.4	2710.7	2714.6	2728.5	2710.7
175°	2732.2	2718.4	2722.4	2736.2	2716.6
177.5°	2736.2	2722.4	2724.4	2738.3	2720.5
180°	2726.4	2726.4	2726.4	2726.4	2726.4

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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	11.25	12.09	12.20	13.05	14.30	7.22	8.07	8.17	9.03	10.27
	3H	12.93	13.68	13.89	14.65	15.92	8.41	9.17	9.37	10.14	11.41
	4H	13.54	14.25	14.51	15.23	16.51	8.87	9.58	9.84	10.55	11.83
	6H	13.96	14.62	14.95	15.60	16.89	9.19	9.85	10.17	10.82	12.12
	8H	14.09	14.71	15.08	15.71	17.00	9.28	9.91	10.27	10.90	12.19
	12H	14.15	14.75	15.15	15.73	17.05	9.33	9.92	10.32	10.91	12.22
4H	2H	11.27	11.98	12.25	12.96	14.24	7.82	8.53	8.80	9.51	10.79
	3H	13.10	13.69	14.09	14.70	15.99	9.17	9.77	10.16	10.77	12.06
	4H	13.79	14.34	14.79	15.33	16.65	9.72	10.27	10.72	11.26	12.58
	6H	14.31	14.78	15.32	15.80	17.11	10.15	10.61	11.15	11.63	12.95
	8H	14.49	14.92	15.50	15.94	17.26	10.28	10.71	11.29	11.72	13.05
	12H	14.58	14.98	15.61	16.00	17.34	10.34	10.73	11.37	11.76	13.10
8H	4H	13.76	14.20	14.77	15.21	16.54	10.01	10.44	11.02	11.45	12.78
	6H	14.33	14.69	15.37	15.75	17.07	10.53	10.89	11.56	11.94	13.27
	8H	14.55	14.87	15.59	15.91	17.25	10.72	11.03	11.76	12.08	13.42
	12H	14.69	14.97	15.73	16.00	17.39	10.84	11.12	11.89	12.15	13.54
12H	4H	13.72	14.11	14.74	15.14	16.47	10.01	10.40	11.04	11.43	12.77
	6H	14.31	14.62	15.35	15.66	17.01	10.58	10.89	11.62	11.93	13.28
	8H	14.53	14.81	15.57	15.84	17.23	10.79	11.07	11.83	12.10	13.49