

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: P927610

Luminaire Tested: DFN2DIP-HX4F0-060D080US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927610
REPORT IS A COMBINATION OF REPORTS P900896 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D080US840-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

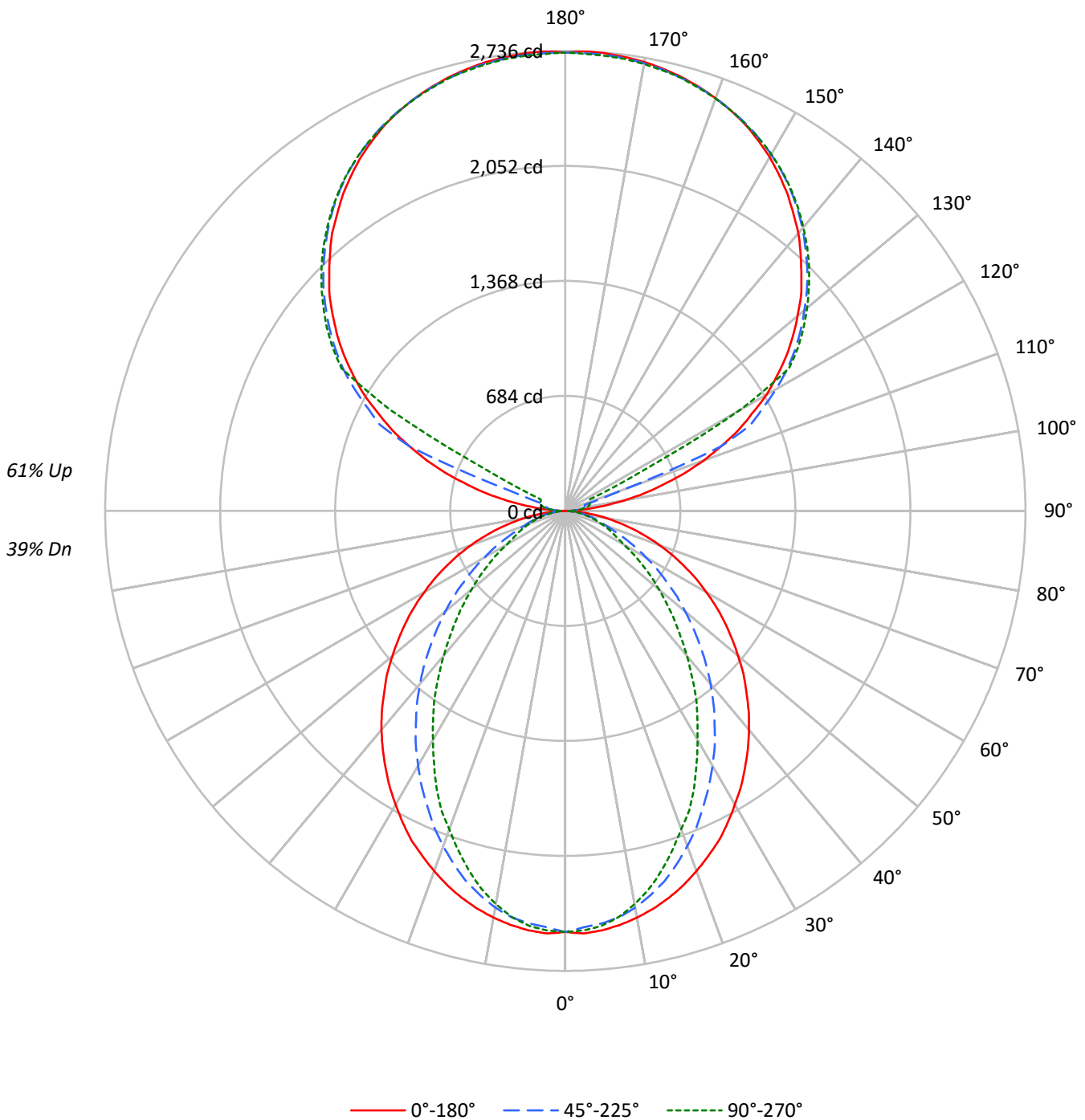
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13147.6 lumens
Efficiency: N/A
Efficacy: 116.9 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): 112.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927610
CATALOG NUMBER: DFN2DIP-HX4F0-060D080US840-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P927610

CATALOG NUMBER: DFN2DIP-HX4F0-060D080US840-RLLONL

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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39			
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40	34			
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34	29			
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29	25			
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26	22			
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23	19			
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20	17			
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18	15			
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16	14			
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15	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°	1862	1862	1862
5°	1865	1833	1844
10°	1847	1797	1784
15°	1821	1738	1692
20°	1788	1656	1578
25°	1754	1564	1468
30°	1708	1470	1329
35°	1663	1369	1206
40°	1617	1265	1066
45°	1563	1149	939
50°	1508	1032	814
55°	1450	906	695
60°	1384	776	572
65°	1307	642	515
70°	1214	518	466
75°	1098	457	424
80°	928	384	368
85°	649	257	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1563 cd/sqm



TEST NUMBER: P927610

CATALOG NUMBER: DFN2DIP-HX4F0-060D080US840-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	1.8
10°-20°	644.3	4.9
20°-30°	904.5	6.9
30°-40°	986.0	7.5
40°-50°	906.2	6.9
50°-60°	711.7	5.4
60°-70°	463.3	3.5
70°-80°	238.5	1.8
80°-90°	65.7	0.5
90°-100°	89.9	0.7
100°-110°	335.1	2.5
110°-120°	888.8	6.8
120°-130°	1474.2	11.2
130°-140°	1565.9	11.9
140°-150°	1455.3	11.1
150°-160°	1170.1	8.9
160°-170°	754.0	5.7
170°-180°	259.5	2.0
0°-30°	1783.5	13.6
0°-40°	2769.5	21.1
0°-60°	4387.4	33.4
0°-90°	5154.8	39.2
90°-120°	1313.9	10.0
90°-150°	5809.3	44.2
90°-180°	7993.0	60.8
0°-180°	13147.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2089	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	2	24	39	49	53	12
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	



TEST NUMBER: P927610

CATALOG NUMBER: DFN2DIP-HX4F0-060D080US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.1	2504.1	2504.1	2504.1	2504.1
2.5°	2515.4	2504.1	2479.1	2501.9	2497.3
5°	2504.1	2492.8	2463.2	2483.7	2476.9
7.5°	2483.7	2470.2	2438.5	2447.4	2436.0
10°	2456.4	2440.6	2395.4	2388.5	2374.9
12.5°	2422.6	2402.1	2340.8	2327.4	2302.3
15°	2381.7	2356.7	2279.7	2236.7	2214.1
17.5°	2334.2	2297.8	2202.6	2152.8	2116.5
20°	2279.7	2234.3	2121.1	2064.5	2014.6
22.5°	2220.9	2168.6	2037.2	1960.2	1926.3
25°	2162.0	2089.4	1939.8	1847.0	1812.9
27.5°	2091.8	2014.6	1849.1	1742.6	1690.5
30°	2017.0	1930.6	1749.4	1634.0	1572.7
32.5°	1944.4	1840.1	1654.5	1518.3	1461.6
35°	1862.9	1747.3	1547.9	1405.0	1355.1
37.5°	1783.5	1658.7	1448.2	1291.6	1235.1
40°	1699.6	1563.8	1343.7	1182.9	1124.0
42.5°	1613.6	1468.6	1239.6	1071.8	1015.4
45°	1522.9	1370.9	1133.2	972.0	917.7
47.5°	1436.8	1276.0	1031.2	870.1	820.4
50°	1341.6	1180.8	931.4	774.9	727.6
52.5°	1248.5	1078.6	836.2	686.7	643.6
55°	1157.9	981.2	736.4	600.6	557.5
57.5°	1065.1	883.8	648.2	521.3	484.9
60°	969.9	788.7	555.2	439.8	403.4
62.5°	877.1	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.3	317.4	310.4
67.5°	691.2	507.5	317.4	278.7	271.9
70°	596.0	419.3	262.7	240.2	231.0
72.5°	505.4	337.6	219.7	201.8	197.1
75°	416.9	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.3	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
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



TEST NUMBER: P927610

CATALOG NUMBER: DFN2DIP-HX4F0-060D080US840-RLONL

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



TEST NUMBER: P927610
 CATALOG NUMBER: DFN2DIP-HX4F0-060D080US840-RLONL

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	8.21	8.96	9.26	10.01	11.43	4.18	4.93	5.23	5.98	7.40
	3H	9.88	10.55	10.94	11.61	13.05	5.37	6.04	6.43	7.10	8.54
	4H	10.49	11.12	11.56	12.18	13.63	5.81	6.45	6.89	7.51	8.96
	6H	10.91	11.49	11.99	12.55	14.01	6.13	6.72	7.21	7.78	9.24
	8H	11.03	11.58	12.11	12.67	14.12	6.22	6.78	7.31	7.86	9.31
	12H	11.09	11.62	12.18	12.69	14.17	6.26	6.79	7.35	7.87	9.34
4H	2H	8.22	8.85	9.30	9.91	11.36	4.77	5.40	5.85	6.46	7.91
	3H	10.04	10.57	11.13	11.66	13.12	6.11	6.64	7.20	7.73	9.19
	4H	10.73	11.21	11.82	12.29	13.77	6.66	7.14	7.75	8.22	9.70
	6H	11.24	11.66	12.34	12.76	14.23	7.08	7.49	8.18	8.59	10.07
	8H	11.42	11.80	12.52	12.90	14.39	7.20	7.59	8.30	8.69	10.18
	12H	11.51	11.86	12.62	12.97	14.46	7.27	7.62	8.38	8.73	10.22
8H	4H	10.69	11.08	11.79	12.17	13.66	6.93	7.32	8.03	8.42	9.90
	6H	11.26	11.58	12.38	12.71	14.20	7.45	7.77	8.57	8.91	10.39
	8H	11.47	11.75	12.60	12.87	14.38	7.64	7.92	8.77	9.04	10.55
	12H	11.61	11.86	12.74	12.97	14.51	7.76	8.01	8.89	9.12	10.66
12H	4H	10.64	10.99	11.76	12.10	13.59	6.94	7.29	8.05	8.39	9.89
	6H	11.23	11.51	12.36	12.63	14.14	7.50	7.78	8.63	8.90	10.41
	8H	11.45	11.70	12.58	12.81	14.35	7.71	7.96	8.84	9.07	10.61