

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: P907825

Luminaire Tested: DFN2DIP-4P4F0-060D080US840-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907825
REPORT IS A COMBINATION OF REPORTS P900666 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D080US840-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

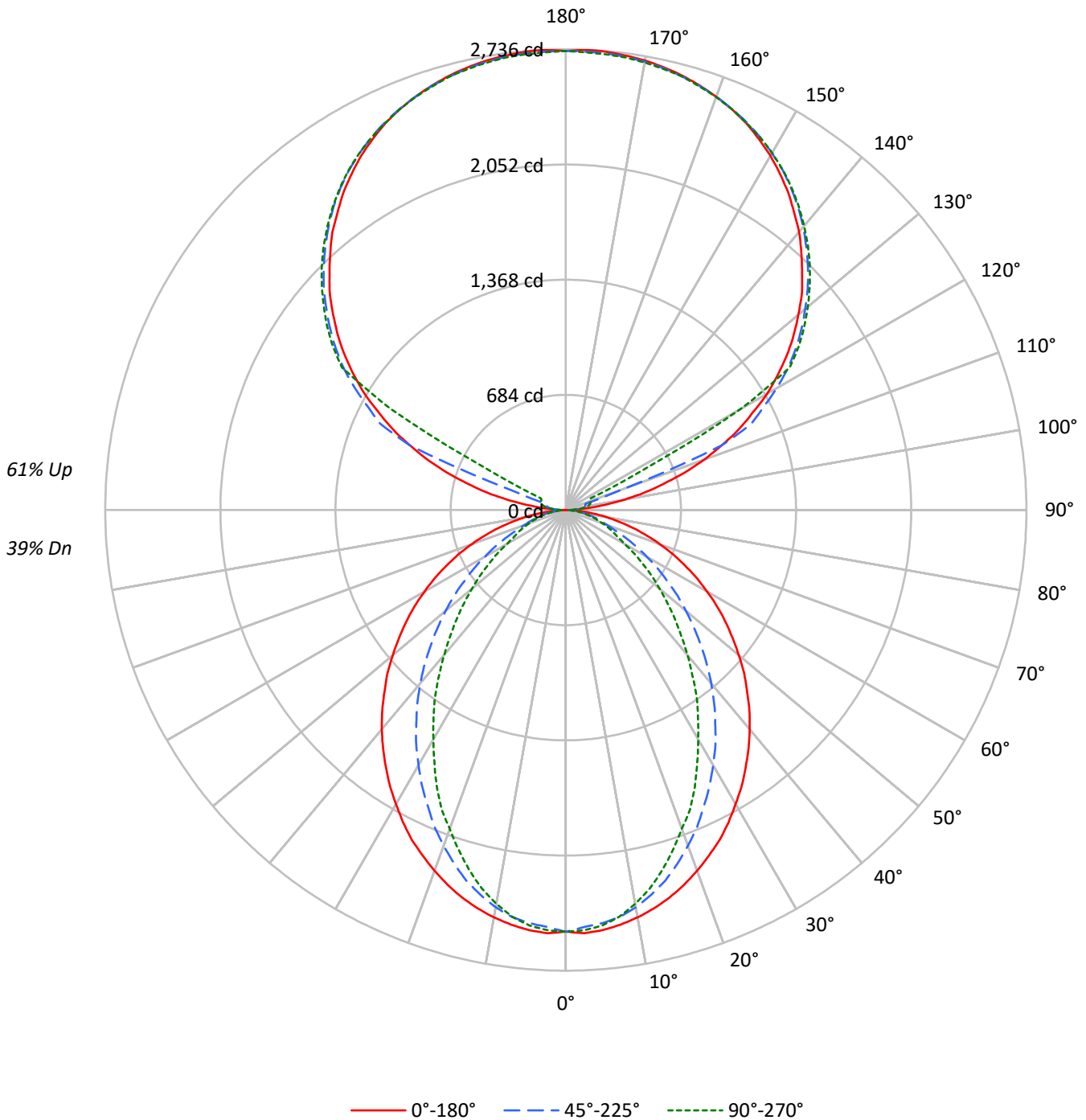
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13148.5 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 135
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

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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				39
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40	34				34
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34	29				29
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29	25				25
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26	22				22
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23	19				19
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20	17				17
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18	15				15
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16	14				14
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1625	1625	1625
5°	1627	1599	1610
10°	1611	1568	1558
15°	1589	1517	1477
20°	1560	1446	1379
25°	1530	1367	1283
30°	1490	1285	1162
35°	1450	1197	1055
40°	1410	1106	933
45°	1364	1005	822
50°	1316	903	713
55°	1265	794	609
60°	1207	679	502
65°	1140	563	453
70°	1059	455	411
75°	957	402	375
80°	810	339	327
85°	566	229	250

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1406 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	1.8
10°-20°	644.3	4.9
20°-30°	904.6	6.9
30°-40°	986.1	7.5
40°-50°	906.3	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°	888.9	6.8
120°-130°	1474.3	11.2
130°-140°	1566.0	11.9
140°-150°	1455.4	11.1
150°-160°	1170.1	8.9
160°-170°	754.0	5.7
170°-180°	259.5	2.0
0°-30°	1783.6	13.6
0°-40°	2769.6	21.1
0°-60°	4387.7	33.4
0°-90°	5155.1	39.2
90°-120°	1314.0	10.0
90°-150°	5809.7	44.2
90°-180°	7993.0	60.8
0°-180°	13148.5	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	2090	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	2518	2541	2553	2537	1168
165°	2671	2660	2665	2679	2665	755
175°	2732	2719	2723	2736	2717	260
180°	2726	2726	2726	2726	2726	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.3	2504.3	2504.3	2504.3	2504.3
2.5°	2515.6	2504.3	2479.2	2502.0	2497.5
5°	2504.3	2493.0	2463.4	2483.9	2477.1
7.5°	2483.9	2470.3	2438.6	2447.5	2436.2
10°	2456.6	2440.7	2395.6	2388.6	2375.1
12.5°	2422.8	2402.3	2341.0	2327.5	2302.5
15°	2381.9	2356.8	2279.9	2236.9	2214.2
17.5°	2334.3	2297.9	2202.7	2152.9	2116.7
20°	2279.9	2234.4	2121.2	2064.7	2014.7
22.5°	2221.0	2168.8	2037.3	1960.4	1926.4
25°	2162.1	2089.5	1940.0	1847.1	1813.0
27.5°	2091.9	2014.7	1849.3	1742.7	1690.6
30°	2017.1	1930.8	1749.5	1634.1	1572.8
32.5°	1944.5	1840.2	1654.6	1518.4	1461.7
35°	1863.0	1747.4	1548.0	1405.1	1355.1
37.5°	1783.6	1658.8	1448.2	1291.7	1235.2
40°	1699.7	1563.9	1343.8	1183.0	1124.1
42.5°	1613.7	1468.6	1239.7	1071.9	1015.4
45°	1523.0	1371.0	1133.3	972.1	917.8
47.5°	1436.9	1276.1	1031.3	870.2	820.4
50°	1341.7	1180.8	931.5	775.0	727.6
52.5°	1248.6	1078.6	836.3	686.7	643.7
55°	1158.0	981.3	736.5	600.7	557.5
57.5°	1065.2	883.8	648.2	521.3	484.9
60°	970.0	788.7	555.2	439.8	403.4
62.5°	877.2	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.4	317.4	310.4
67.5°	691.3	507.6	317.4	278.7	272.0
70°	596.0	419.3	262.8	240.2	231.1
72.5°	505.4	337.6	219.7	201.8	197.1
75°	417.0	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°	97.4	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°	128.2	63.0	76.9	86.9	84.8
97.5°	230.8	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.2	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.8	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°	1000.4	1035.7	1002.3	151.8	157.9
115°	1134.4	1167.9	1217.3	303.9	161.9
117.5°	1250.8	1290.2	1323.9	1041.6	524.8
120°	1381.1	1410.6	1446.2	1469.9	1203.5
122.5°	1491.4	1523.1	1562.7	1574.4	1576.5
125°	1603.9	1629.6	1667.1	1680.9	1686.8
127.5°	1706.5	1734.1	1763.9	1783.5	1785.4
130°	1803.2	1834.8	1856.4	1878.2	1876.3
132.5°	1901.9	1927.6	1949.2	1967.0	1965.1
135°	1984.8	2016.4	2034.0	2054.0	2049.9
137.5°	2071.5	2095.2	2115.1	2134.8	2128.9
140°	2156.3	2172.2	2193.8	2211.6	2201.7
142.5°	2227.6	2241.3	2266.8	2282.6	2272.7
145°	2302.5	2300.4	2333.9	2347.7	2337.8
147.5°	2367.4	2361.6	2395.0	2404.9	2397.1
150°	2430.6	2416.8	2448.4	2460.1	2450.3
152.5°	2483.9	2468.1	2497.6	2509.6	2495.8
155°	2535.2	2517.6	2541.2	2552.9	2537.3
157.5°	2576.6	2560.9	2578.7	2592.5	2576.6
160°	2612.2	2600.3	2612.2	2623.9	2610.1
162.5°	2643.6	2631.9	2641.7	2655.5	2637.8
165°	2671.3	2659.6	2665.4	2679.2	2665.4
167.5°	2693.0	2681.1	2687.2	2701.0	2683.2
170°	2710.9	2698.9	2702.9	2716.7	2698.9
172.5°	2722.6	2710.9	2714.8	2728.7	2710.9
175°	2732.4	2718.6	2722.6	2736.3	2716.7
177.5°	2736.3	2722.6	2724.6	2738.5	2720.7
180°	2726.5	2726.5	2726.5	2726.5	2726.5



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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	7.75	8.50	8.80	9.55	10.97	3.71	4.46	4.76	5.51	6.93
	3H	9.43	10.10	10.49	11.16	12.60	4.90	5.57	5.96	6.63	8.07
	4H	10.04	10.67	11.11	11.74	13.18	5.35	5.98	6.42	7.04	8.49
	6H	10.46	11.04	11.54	12.11	13.57	5.66	6.25	6.75	7.31	8.77
	8H	10.59	11.14	11.67	12.22	13.68	5.75	6.31	6.84	7.39	8.84
	12H	10.65	11.18	11.74	12.25	13.73	5.80	6.32	6.89	7.40	8.87
4H	2H	7.76	8.40	8.84	9.46	10.90	4.30	4.94	5.38	6.00	7.44
	3H	9.59	10.12	10.68	11.21	12.66	5.65	6.18	6.73	7.26	8.72
	4H	10.28	10.77	11.37	11.85	13.33	6.19	6.68	7.28	7.76	9.24
	6H	10.80	11.21	11.90	12.32	13.79	6.61	7.03	7.71	8.13	9.60
	8H	10.98	11.36	12.08	12.46	13.95	6.74	7.13	7.84	8.22	9.71
	12H	11.07	11.42	12.19	12.53	14.02	6.80	7.15	7.92	8.26	9.75
8H	4H	10.25	10.63	11.34	11.73	13.22	6.47	6.86	7.57	7.95	9.44
	6H	10.81	11.13	11.94	12.27	13.76	6.99	7.31	8.11	8.45	9.93
	8H	11.04	11.31	12.16	12.43	13.94	7.18	7.46	8.31	8.58	10.09
	12H	11.17	11.42	12.30	12.53	14.08	7.30	7.55	8.43	8.66	10.20
12H	4H	10.19	10.54	11.31	11.65	13.15	6.47	6.82	7.59	7.93	9.43
	6H	10.79	11.07	11.92	12.19	13.69	7.04	7.32	8.17	8.44	9.94
	8H	11.01	11.26	12.14	12.37	13.91	7.25	7.50	8.38	8.61	10.15