

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: P909446

Luminaire Tested: DFN2DIP-SQ4F0-070D100US840-RLLFLL

Issue Date: 11/21/2024

**Test Information**

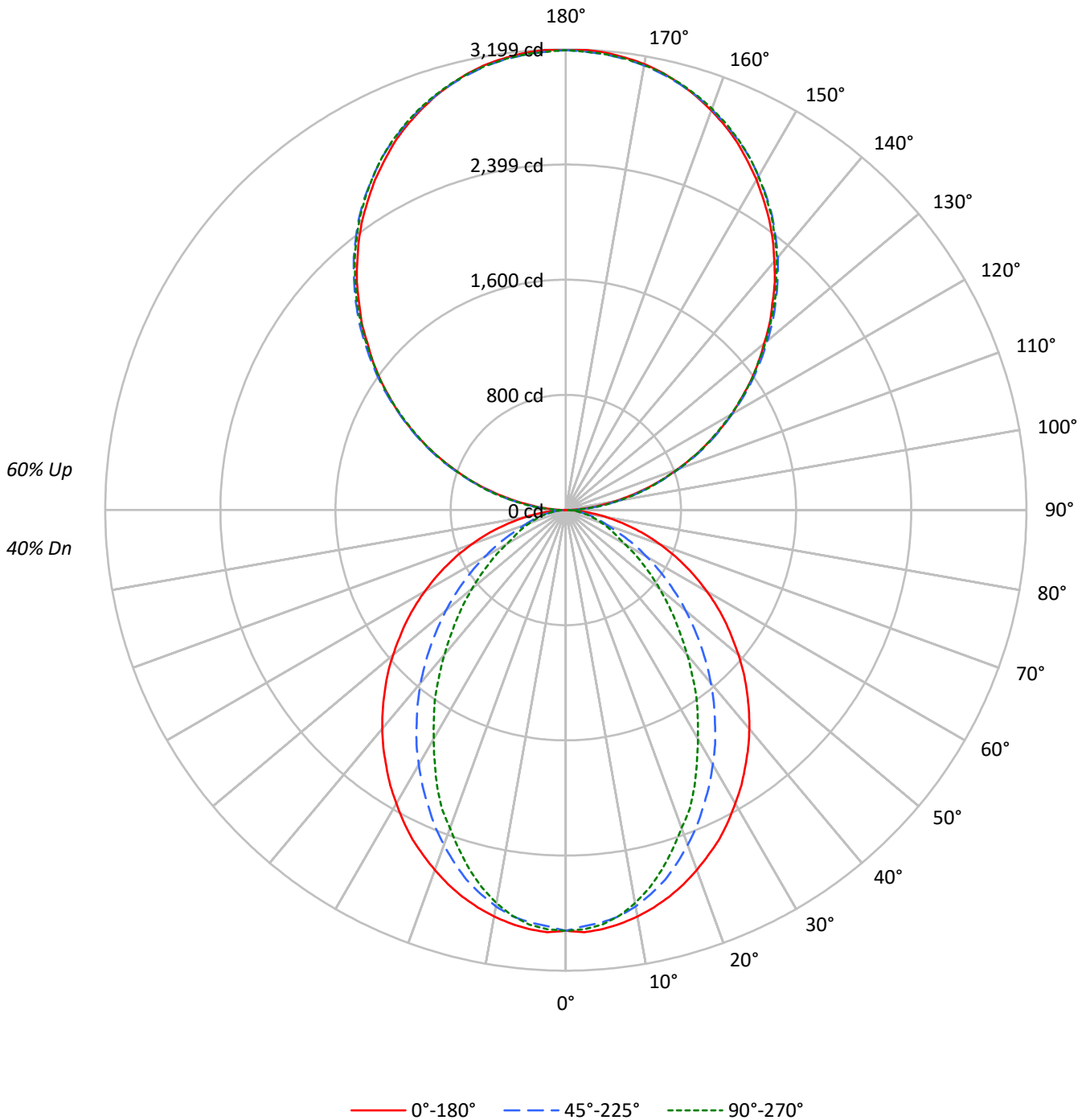
Test Method: LM-79-2019  
Report Number: P909446  
REPORT IS A COMBINATION OF REPORTS P900134 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-070D100US840-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14945.9 lumens  
Efficiency: N/A  
Efficacy: 109.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 136  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9967  
Total Harmonic Distortion (THDi): 0.063  
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	78	78	78	62	62	62	47	47	47	47	47	47	40
1	96	92	88	85	87	84	81	78	69	67	65	55	54	52	42	41	41	41	41	41	35
2	88	81	75	70	80	74	69	65	61	57	54	49	46	44	38	36	35	35	35	35	30
3	80	71	64	59	73	65	59	54	54	50	46	43	40	38	34	32	30	30	30	30	26
4	74	63	56	50	67	58	51	46	48	43	39	39	35	33	30	28	26	26	26	26	22
5	68	56	49	43	61	52	45	40	43	38	34	35	31	29	28	25	23	23	23	23	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	20	20	20	20	17
7	58	46	38	33	53	42	35	31	35	30	27	29	25	22	23	20	18	18	18	18	16
8	54	42	34	29	49	38	32	27	32	27	24	27	23	20	21	19	17	17	17	17	14
9	50	38	31	26	45	35	29	24	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	32	26	22	27	22	19	23	19	16	18	16	14	14	14	14	12

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2050	2050	2050
5°	2053	2018	2031
10°	2033	1979	1965
15°	2005	1914	1864
20°	1968	1824	1739
25°	1930	1723	1618
30°	1879	1620	1465
35°	1829	1509	1330
40°	1778	1394	1176
45°	1719	1266	1036
50°	1658	1137	899
55°	1595	1000	768
60°	1521	855	633
65°	1436	709	570
70°	1333	572	517
75°	1204	505	472
80°	1017	425	411
85°	708	286	313

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2515 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	273.8	1.8
10°-20°	751.7	5.0
20°-30°	1055.3	7.1
30°-40°	1150.4	7.7
40°-50°	1057.3	7.1
50°-60°	830.4	5.6
60°-70°	540.5	3.6
70°-80°	278.2	1.9
80°-90°	80.1	0.5
90°-100°	197.6	1.3
100°-110°	627.9	4.2
110°-120°	1074.6	7.2
120°-130°	1413.3	9.5
130°-140°	1586.4	10.6
140°-150°	1555.6	10.4
150°-160°	1304.9	8.7
160°-170°	865.4	5.8
170°-180°	302.5	2.0
0°-30°	2080.9	13.9
0°-40°	3231.2	21.6
0°-60°	5118.9	34.2
0°-90°	6017.7	40.3
90°-120°	1900.2	12.7
90°-150°	6455.4	43.2
90°-180°	8928.0	59.7
0°-180°	14945.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	3	35	94	89	92	15
95°	141	168	172	172	168	156
105°	580	587	593	598	598	612
115°	1078	1094	1089	1086	1078	1067
125°	1568	1593	1585	1576	1573	1402
135°	2029	2059	2064	2062	2054	1568
145°	2463	2482	2498	2500	2490	1539
155°	2816	2824	2833	2846	2838	1296
165°	3064	3061	3061	3080	3067	864
175°	3188	3180	3175	3194	3177	303
180°	3194	3194	3194	3194	3194	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.9	34.6	94.3	88.6	91.5
92.5°	59.7	80.9	83.8	86.6	86.6
95°	140.6	167.5	172.4	172.4	167.5
97.5°	234.0	259.0	269.6	269.6	269.6
100°	341.8	364.0	371.6	371.6	368.8
102.5°	455.4	471.8	482.4	485.2	482.4
105°	579.7	587.3	593.1	597.9	597.9
107.5°	702.9	714.5	714.5	716.4	702.9
110°	822.3	837.7	837.7	837.7	830.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	951.3	967.7	964.8	957.0	951.3
115°	1078.4	1093.8	1089.0	1086.1	1078.4
117.5°	1204.6	1225.8	1212.2	1204.6	1196.8
120°	1331.6	1352.8	1331.6	1331.6	1323.0
122.5°	1447.1	1474.1	1460.7	1453.0	1447.1
125°	1568.5	1592.6	1584.9	1576.2	1573.4
127.5°	1687.0	1716.8	1706.2	1694.7	1687.0
130°	1797.7	1832.3	1827.6	1821.7	1811.2
132.5°	1921.9	1948.8	1950.8	1937.3	1929.6
135°	2028.7	2058.6	2064.4	2061.5	2053.8
137.5°	2148.2	2172.2	2177.1	2175.1	2163.5
140°	2253.1	2277.1	2290.7	2290.7	2280.1
142.5°	2361.0	2385.0	2392.7	2395.6	2385.0
145°	2463.0	2482.2	2497.7	2500.5	2489.9
147.5°	2554.5	2578.6	2590.1	2595.0	2584.3
150°	2648.9	2665.2	2675.8	2684.4	2675.8
152.5°	2732.6	2749.0	2762.5	2773.1	2762.5
155°	2816.4	2824.1	2832.8	2846.2	2837.5
157.5°	2888.6	2894.4	2899.2	2918.4	2905.0
160°	2953.1	2958.9	2961.7	2978.1	2966.6
162.5°	3012.8	3012.8	3015.7	3033.9	3020.5
165°	3063.8	3060.9	3060.9	3080.2	3066.8
167.5°	3110.1	3101.4	3101.4	3120.7	3107.2
170°	3144.7	3137.0	3134.1	3153.4	3137.0
172.5°	3168.8	3161.1	3158.2	3177.4	3161.1
175°	3188.0	3180.4	3174.6	3193.8	3177.4
177.5°	3198.6	3191.0	3185.1	3201.5	3185.1
180°	3193.8	3193.8	3193.8	3193.8	3193.8



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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	8.67	9.43	9.71	10.47	11.88	4.63	5.39	5.67	6.43	7.84
	3H	10.35	11.02	11.40	12.08	13.50	5.81	6.49	6.87	7.54	8.97
	4H	10.95	11.59	12.02	12.65	14.08	6.26	6.90	7.32	7.96	9.39
	6H	11.38	11.96	12.45	13.02	14.47	6.58	7.17	7.65	8.23	9.67
	8H	11.50	12.06	12.58	13.14	14.58	6.67	7.23	7.75	8.30	9.74
	12H	11.56	12.10	12.65	13.16	14.63	6.71	7.24	7.79	8.31	9.77
4H	2H	8.68	9.32	9.75	10.37	11.81	5.22	5.86	6.29	6.91	8.35
	3H	10.51	11.04	11.58	12.12	13.57	6.56	7.10	7.64	8.18	9.62
	4H	11.20	11.69	12.28	12.76	14.23	7.11	7.60	8.19	8.67	10.14
	6H	11.71	12.13	12.81	13.23	14.69	7.52	7.94	8.62	9.04	10.50
	8H	11.89	12.28	12.98	13.37	14.85	7.65	8.04	8.74	9.13	10.61
	12H	11.98	12.34	13.09	13.44	14.92	7.71	8.07	8.82	9.17	10.65
8H	4H	11.16	11.55	12.25	12.64	14.12	7.39	7.78	8.48	8.87	10.34
	6H	11.73	12.05	12.84	13.18	14.65	7.90	8.23	9.02	9.36	10.83
	8H	11.95	12.23	13.07	13.34	14.84	8.09	8.38	9.21	9.49	10.98
	12H	12.09	12.34	13.21	13.44	14.97	8.21	8.46	9.33	9.57	11.10
12H	4H	11.11	11.46	12.22	12.56	14.05	7.39	7.74	8.50	8.84	10.32
	6H	11.70	11.99	12.82	13.10	14.59	7.95	8.24	9.07	9.35	10.84
	8H	11.92	12.17	13.05	13.28	14.81	8.16	8.41	9.28	9.52	11.05