

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: P909482

Luminaire Tested: DFN2DIP-SQ4F0-080D100US840-RLLFLL

Issue Date: 11/21/2024

**Test Information**

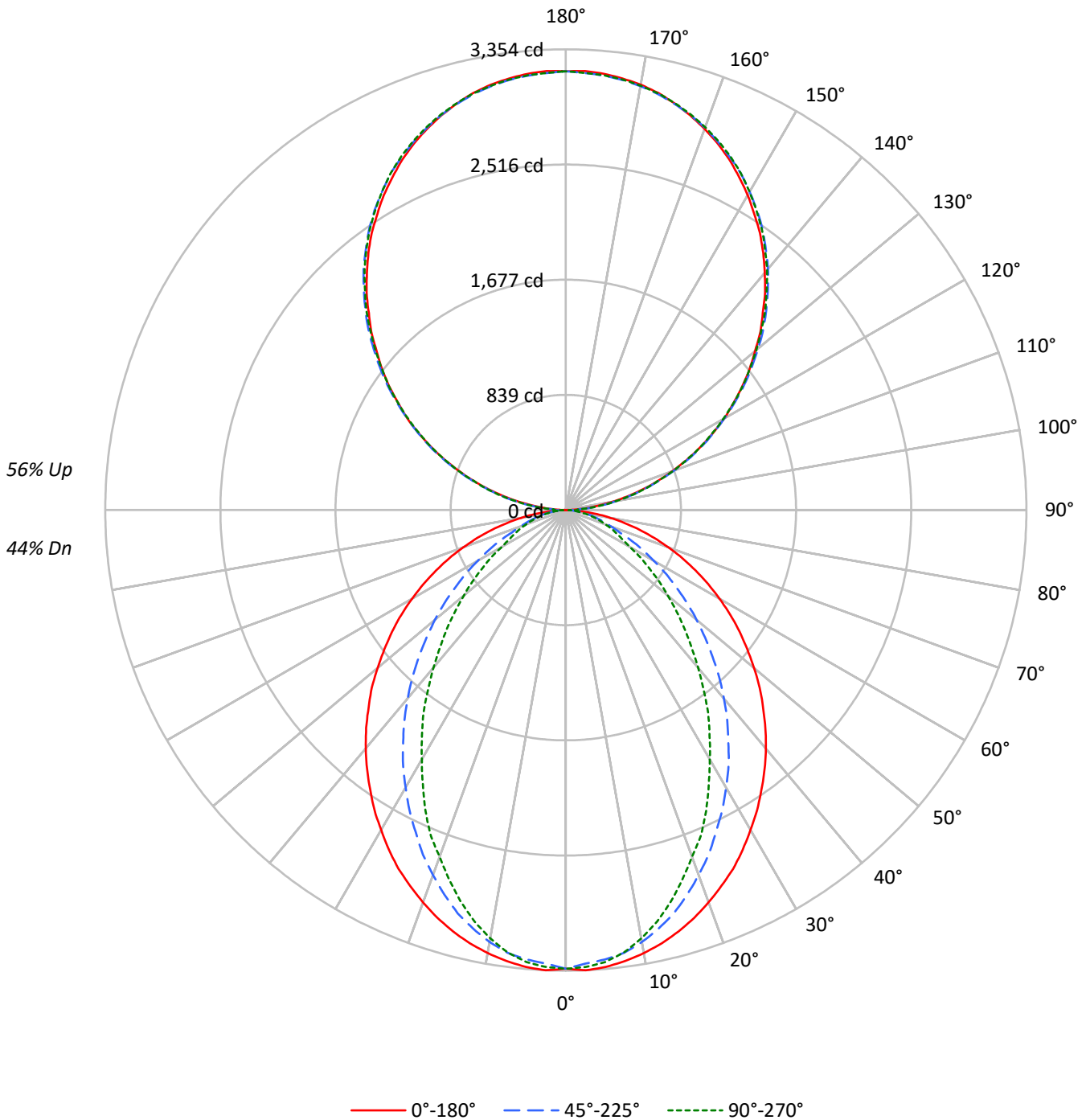
Test Method: LM-79-2019  
Report Number: P909482  
REPORT IS A COMBINATION OF REPORTS P900136 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-080D100US840-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15804.4 lumens  
Efficiency: N/A  
Efficacy: 108.2 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): 146.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9954  
Total Harmonic Distortion (THDi): 0.076  
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	106	106	106	106	97	97	97	97	80	80	80	64	64	64	50	50	50	44				44
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43	37				37
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37	32				32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28				28
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	32	30	28	24				24
5	68	57	49	43	62	53	46	41	44	39	35	37	33	30	29	27	25	21				21
6	63	51	43	38	57	47	41	35	40	35	31	33	29	26	27	24	22	19				19
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	25	22	20	17				17
8	54	42	35	30	50	39	32	28	33	28	24	28	24	21	23	20	18	15				15
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16	14				14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	15	13				13

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

	0°	45°	90°
0°	2343	2343	2343
5°	2347	2306	2321
10°	2323	2261	2246
15°	2291	2187	2130
20°	2249	2085	1987
25°	2206	1969	1849
30°	2147	1851	1674
35°	2090	1724	1521
40°	2032	1593	1344
45°	1965	1447	1184
50°	1895	1300	1028
55°	1822	1142	878
60°	1738	978	723
65°	1641	810	651
70°	1524	654	591
75°	1376	578	539
80°	1162	486	469
85°	810	327	358

**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°	312.9	2.0
10°-20°	859.1	5.4
20°-30°	1206.1	7.6
30°-40°	1314.7	8.3
40°-50°	1208.4	7.6
50°-60°	949.0	6.0
60°-70°	617.7	3.9
70°-80°	318.0	2.0
80°-90°	90.2	0.6
90°-100°	197.6	1.3
100°-110°	627.9	4.0
110°-120°	1074.6	6.8
120°-130°	1413.3	8.9
130°-140°	1586.4	10.0
140°-150°	1555.6	9.8
150°-160°	1304.9	8.3
160°-170°	865.4	5.5
170°-180°	302.5	1.9
0°-30°	2378.1	15.0
0°-40°	3692.9	23.4
0°-60°	5850.2	37.0
0°-90°	6876.2	43.5
90°-120°	1900.2	12.0
90°-150°	6455.4	40.8
90°-180°	8928.0	56.5
0°-180°	15804.4	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	2587	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2031	1828	1511	1296	1224	1568
55°	1544	1308	982	801	744	1380
65°	1043	798	526	423	414	1034
75°	556	344	242	221	218	588
85°	130	66	57	57	57	149
90°	3	35	94	89	92	16
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°	3339.0	3339.0	3339.0	3339.0	3339.0
2.5°	3354.1	3339.0	3305.7	3336.1	3330.0
5°	3339.0	3324.0	3284.5	3311.8	3302.8
7.5°	3311.8	3293.8	3251.5	3263.4	3248.2
10°	3275.5	3254.4	3194.1	3184.8	3166.8
12.5°	3230.4	3203.1	3121.3	3103.3	3070.0
15°	3175.8	3142.5	3039.9	2982.5	2952.3
17.5°	3112.3	3063.9	2937.0	2870.6	2822.2
20°	3039.9	2979.3	2828.3	2753.0	2686.2
22.5°	2961.3	2891.7	2716.4	2613.8	2568.6
25°	2882.8	2786.0	2586.6	2462.9	2417.3
27.5°	2789.1	2686.2	2465.7	2323.7	2254.1
30°	2689.5	2574.3	2332.7	2178.8	2097.0
32.5°	2592.6	2453.6	2206.1	2024.6	1948.9
35°	2484.0	2329.8	2064.0	1873.6	1806.9
37.5°	2378.1	2211.8	1931.0	1722.2	1646.9
40°	2266.3	2085.2	1791.8	1577.3	1498.7
42.5°	2151.5	1958.2	1652.9	1429.3	1353.8
45°	2030.6	1828.1	1511.0	1296.2	1223.8
47.5°	1915.9	1701.4	1375.0	1160.2	1093.9
50°	1788.9	1574.5	1242.0	1033.3	970.1
52.5°	1664.9	1438.1	1115.0	915.6	858.3
55°	1544.0	1308.4	982.0	800.8	743.5
57.5°	1420.3	1178.5	864.3	695.1	646.6
60°	1293.2	1051.6	740.2	586.3	538.0
62.5°	1169.5	927.8	634.5	489.6	465.5
65°	1042.6	797.6	525.7	423.2	413.8
67.5°	921.7	676.8	423.2	371.5	362.6
70°	794.8	559.2	350.4	320.2	308.1
72.5°	673.9	450.1	293.1	269.0	262.9
75°	555.9	344.4	241.8	220.6	217.7
77.5°	438.3	244.6	190.5	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	118.0	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°	2.9	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	9.48	10.26	10.50	11.28	12.64	5.44	6.22	6.46	7.24	8.60
	3H	11.16	11.85	12.18	12.88	14.27	6.62	7.32	7.65	8.35	9.74
	4H	11.77	12.43	12.81	13.46	14.85	7.07	7.73	8.11	8.77	10.16
	6H	12.19	12.80	13.24	13.83	15.24	7.39	8.00	8.44	9.04	10.44
	8H	12.32	12.89	13.37	13.95	15.34	7.48	8.06	8.54	9.11	10.51
	12H	12.38	12.93	13.44	13.97	15.40	7.52	8.07	8.58	9.12	10.54
4H	2H	9.49	10.15	10.54	11.18	12.57	6.03	6.69	7.08	7.72	9.11
	3H	11.32	11.87	12.37	12.93	14.33	7.38	7.93	8.43	8.99	10.39
	4H	12.01	12.52	13.07	13.57	14.99	7.92	8.43	8.98	9.48	10.91
	6H	12.53	12.96	13.60	14.04	15.46	8.34	8.77	9.41	9.85	11.27
	8H	12.71	13.11	13.78	14.18	15.61	8.47	8.87	9.54	9.94	11.38
	12H	12.80	13.17	13.89	14.25	15.69	8.53	8.90	9.62	9.98	11.42
8H	4H	11.98	12.38	13.05	13.45	14.88	8.20	8.60	9.27	9.67	11.11
	6H	12.55	12.88	13.64	13.99	15.42	8.72	9.05	9.81	10.16	11.60
	8H	12.77	13.06	13.86	14.15	15.60	8.91	9.20	10.01	10.30	11.75
	12H	12.91	13.16	14.01	14.25	15.74	9.03	9.29	10.13	10.37	11.87
12H	4H	11.93	12.29	13.01	13.37	14.81	8.21	8.57	9.29	9.65	11.09
	6H	12.52	12.81	13.62	13.91	15.36	8.77	9.06	9.87	10.16	11.61
	8H	12.74	13.00	13.85	14.09	15.58	8.98	9.24	10.08	10.32	11.82