

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: P922883

Luminaire Tested: DFN2DIP-SQ3F0-080D110US940-RLLONL

Issue Date: 11/21/2024

**Test Information**

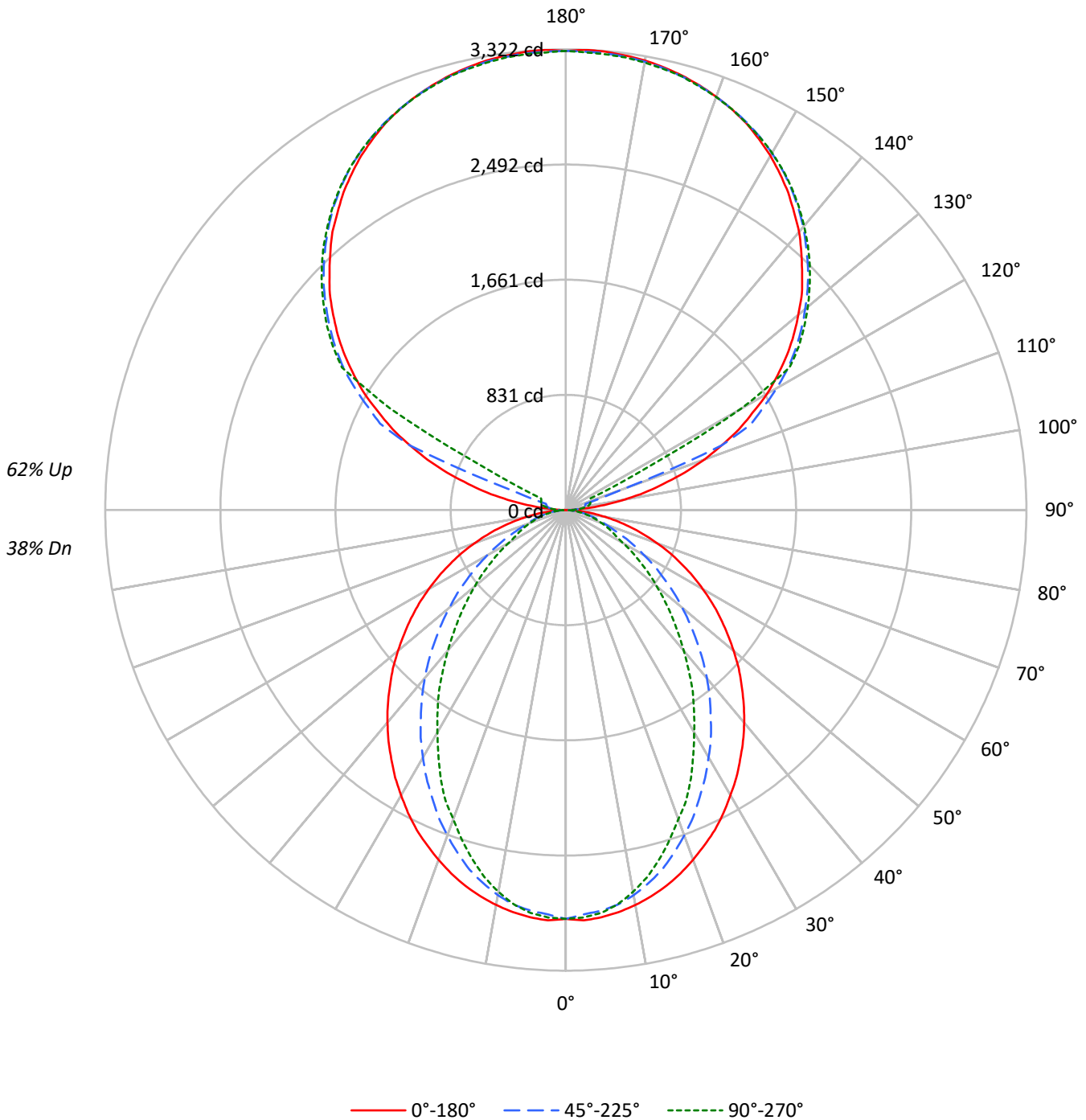
Test Method: LM-79-2019  
Report Number: P922883  
REPORT IS A COMBINATION OF REPORTS P901516 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D110US940-RLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15774.3 lumens  
Efficiency: N/A  
Efficacy: 97.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 162.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	38			
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33			
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34	28			
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29	24			
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25	21			
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22	19			
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20	17			
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18	15			
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16	13			
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	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°	3378	3378	3378
5°	3382	3322	3345
10°	3346	3255	3235
15°	3298	3145	3066
20°	3235	2995	2858
25°	3170	2827	2658
30°	3084	2655	2404
35°	2999	2469	2182
40°	2914	2278	1927
45°	2814	2067	1696
50°	2710	1853	1470
55°	2602	1625	1253
60°	2477	1387	1030
65°	2333	1145	926
70°	2158	920	837
75°	1937	806	759
80°	1619	669	654
85°	1098	436	485

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2814 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.3	1.8
10°-20°	758.6	4.8
20°-30°	1065.0	6.8
30°-40°	1160.9	7.4
40°-50°	1067.0	6.8
50°-60°	838.0	5.3
60°-70°	545.4	3.5
70°-80°	280.8	1.8
80°-90°	77.5	0.5
90°-100°	109.2	0.7
100°-110°	406.9	2.6
110°-120°	1079.2	6.8
120°-130°	1789.9	11.3
130°-140°	1901.3	12.1
140°-150°	1767.1	11.2
150°-160°	1420.7	9.0
160°-170°	915.4	5.8
170°-180°	315.1	2.0
0°-30°	2099.9	13.3
0°-40°	3260.8	20.7
0°-60°	5165.8	32.7
0°-90°	6069.5	38.5
90°-120°	1595.3	10.1
90°-150°	7053.7	44.7
90°-180°	9705.0	61.5
0°-180°	15774.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	2	29	48	60	65	15
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1377	1418	1478	369	196	1356
125°	1947	1979	2024	2041	2048	1737
135°	2410	2448	2470	2494	2489	1862
145°	2796	2793	2834	2850	2838	1748
155°	3078	3057	3085	3100	3080	1418
165°	3243	3229	3236	3253	3236	916
175°	3317	3301	3306	3322	3298	316
180°	3310	3310	3310	3310	3310	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.3	64.6
95°	155.6	76.5	93.3	105.5	103.0
97.5°	280.2	83.9	122.0	129.4	131.7
100°	424.1	95.9	136.5	155.6	160.4
102.5°	581.9	577.4	141.3	167.6	175.0
105°	728.2	800.1	146.2	172.4	182.1
107.5°	898.3	958.0	151.1	177.2	186.9
110°	1061.2	1111.3	419.3	179.8	189.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1214.6	1257.5	1216.8	184.3	191.7
115°	1377.2	1417.9	1478.0	368.9	196.5
117.5°	1518.7	1566.5	1607.4	1264.6	637.1
120°	1676.8	1712.6	1755.9	1784.6	1461.2
122.5°	1810.8	1849.1	1897.2	1911.5	1914.1
125°	1947.3	1978.6	2024.1	2040.9	2048.0
127.5°	2071.9	2105.4	2141.5	2165.4	2167.7
130°	2189.3	2227.8	2253.9	2280.4	2278.1
132.5°	2309.1	2340.4	2366.6	2388.2	2385.9
135°	2409.8	2448.2	2469.5	2493.8	2488.9
137.5°	2515.1	2543.8	2567.9	2591.8	2584.7
140°	2618.1	2637.3	2663.5	2685.1	2673.2
142.5°	2704.5	2721.2	2752.3	2771.3	2759.4
145°	2795.5	2792.9	2833.6	2850.4	2838.5
147.5°	2874.3	2867.2	2907.9	2919.8	2910.5
150°	2951.1	2934.4	2972.7	2987.0	2975.0
152.5°	3015.7	2996.6	3032.4	3047.0	3030.2
155°	3078.0	3056.6	3085.3	3099.6	3080.5
157.5°	3128.3	3109.2	3130.9	3147.6	3128.3
160°	3171.5	3157.0	3171.5	3185.7	3169.0
162.5°	3209.6	3195.4	3207.4	3224.2	3202.6
165°	3243.2	3229.0	3236.1	3252.9	3236.1
167.5°	3269.6	3255.2	3262.6	3279.4	3257.8
170°	3291.3	3276.8	3281.6	3298.4	3276.8
172.5°	3305.5	3291.3	3296.1	3312.9	3291.3
175°	3317.4	3300.7	3305.5	3322.3	3298.4
177.5°	3322.3	3305.5	3308.1	3324.8	3303.3
180°	3310.4	3310.4	3310.4	3310.4	3310.4



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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	10.16	10.91	11.22	11.96	13.39	6.12	6.87	7.18	7.92	9.35
	3H	11.83	12.49	12.89	13.56	15.01	7.30	7.96	8.36	9.03	10.48
	4H	12.43	13.06	13.51	14.13	15.58	7.74	8.37	8.82	9.44	10.89
	6H	12.84	13.42	13.93	14.49	15.96	8.05	8.63	9.14	9.70	11.17
	8H	12.97	13.52	14.06	14.60	16.06	8.14	8.69	9.23	9.77	11.23
	12H	13.02	13.55	14.12	14.63	16.11	8.17	8.70	9.27	9.78	11.26
4H	2H	10.17	10.80	11.25	11.86	13.32	6.71	7.34	7.79	8.40	9.86
	3H	11.98	12.51	13.07	13.60	15.07	8.04	8.56	9.13	9.66	11.13
	4H	12.67	13.15	13.76	14.23	15.72	8.58	9.06	9.68	10.14	11.63
	6H	13.18	13.59	14.28	14.69	16.18	8.99	9.40	10.09	10.51	11.99
	8H	13.35	13.73	14.45	14.83	16.33	9.11	9.49	10.21	10.59	12.09
	12H	13.43	13.78	14.55	14.89	16.40	9.17	9.52	10.29	10.63	12.13
8H	4H	12.63	13.01	13.73	14.11	15.61	8.85	9.24	9.95	10.33	11.83
	6H	13.19	13.50	14.31	14.65	16.14	9.36	9.67	10.48	10.82	12.31
	8H	13.40	13.68	14.53	14.80	16.31	9.54	9.82	10.67	10.94	12.46
	12H	13.53	13.78	14.67	14.89	16.45	9.65	9.90	10.79	11.02	12.57
12H	4H	12.58	12.92	13.70	14.04	15.54	8.85	9.20	9.97	10.31	11.81
	6H	13.16	13.44	14.29	14.56	16.08	9.40	9.68	10.54	10.81	12.32
	8H	13.37	13.62	14.51	14.74	16.29	9.61	9.85	10.74	10.97	12.52