

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: P911963

Luminaire Tested: DFN2DIP-SQ3F0-080D090US850-RLLONL

Issue Date: 11/21/2024

**Test Information**

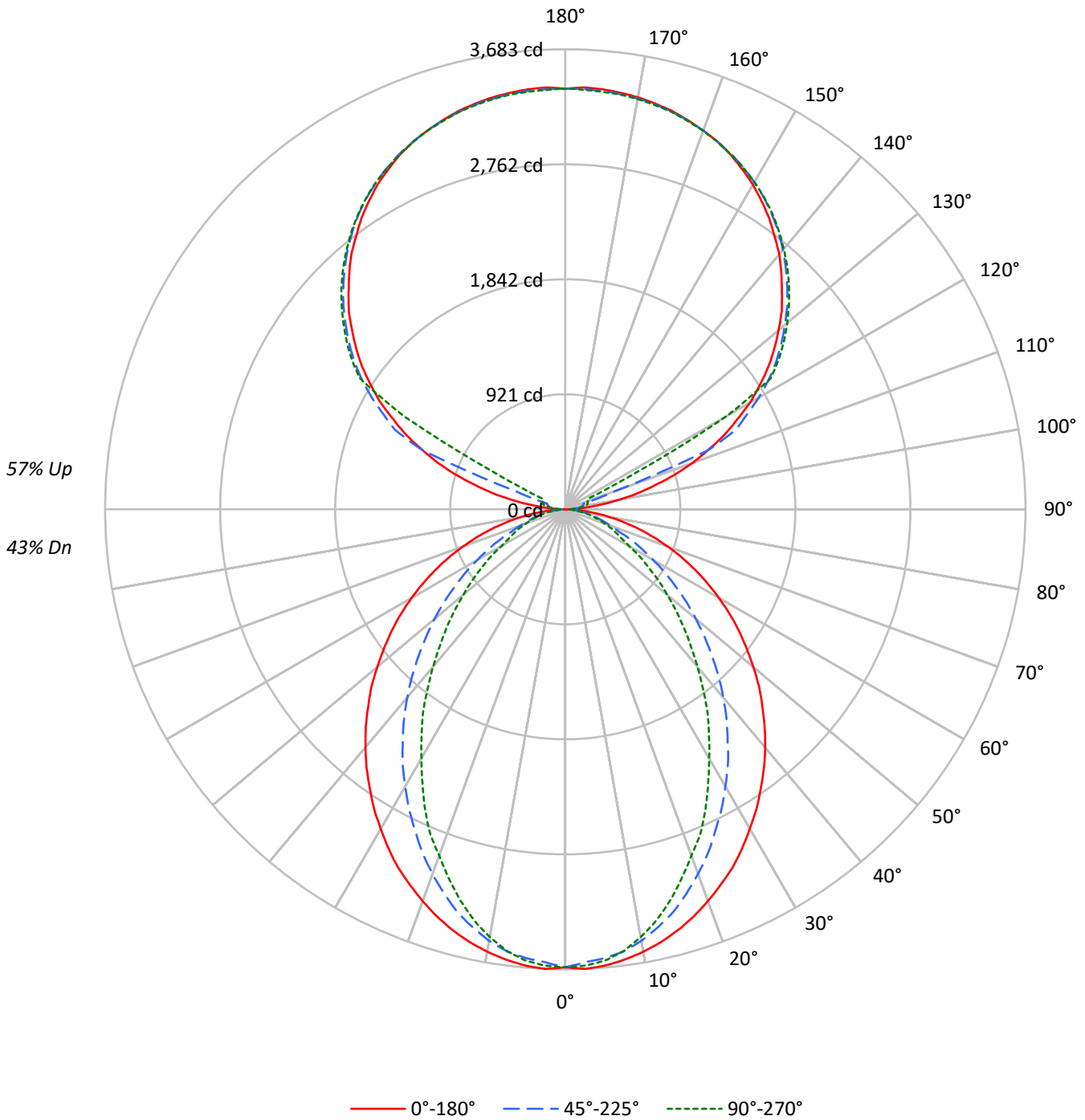
Test Method: LM-79-2019  
Report Number: P911963  
REPORT IS A COMBINATION OF REPORTS P901480 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D090US850-RLLONL  
Description: 3 foot, 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: 17422.4 lumens  
Efficiency: N/A  
Efficacy: 120.4 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: General Diffuse  
  
Input Watts (W): 144.7  
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				
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	43			43
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	40	37	34	32	30	28	24			24
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	27	24	21			21
6	63	51	43	38	57	47	40	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	24	22	19	17			17
8	54	42	35	30	49	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°	4201	4201	4201
5°	4205	4132	4160
10°	4161	4048	4023
15°	4101	3912	3813
20°	4023	3725	3555
25°	3942	3515	3306
30°	3835	3301	2990
35°	3730	3071	2713
40°	3623	2833	2396
45°	3499	2570	2109
50°	3371	2305	1828
55°	3236	2021	1558
60°	3080	1725	1281
65°	2901	1424	1152
70°	2683	1144	1040
75°	2409	1003	944
80°	2013	832	814
85°	1365	542	603

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3499 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	343.7	2.0
10°-20°	943.4	5.4
20°-30°	1324.5	7.6
30°-40°	1443.8	8.3
40°-50°	1327.0	7.6
50°-60°	1042.1	6.0
60°-70°	678.3	3.9
70°-80°	349.2	2.0
80°-90°	95.1	0.5
90°-100°	111.1	0.6
100°-110°	414.0	2.4
110°-120°	1098.2	6.3
120°-130°	1821.4	10.5
130°-140°	1934.7	11.1
140°-150°	1798.1	10.3
150°-160°	1445.6	8.3
160°-170°	931.5	5.3
170°-180°	320.6	1.8
0°-30°	2611.6	15.0
0°-40°	4055.4	23.3
0°-60°	6424.5	36.9
0°-90°	7547.1	43.3
90°-120°	1623.3	9.3
90°-150°	7177.5	41.2
90°-180°	9875.0	56.7
0°-180°	17422.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3650	3607	3637	3627	348
15°	3488	3451	3338	3275	3242	983
25°	3166	3060	2840	2705	2655	1456
35°	2728	2558	2267	2058	1984	1707
45°	2230	2008	1659	1423	1344	1722
55°	1696	1437	1078	879	816	1515
65°	1145	876	577	465	454	1135
75°	610	378	266	242	239	646
85°	143	73	63	63	63	164
90°	2	29	49	61	66	16
95°	158	78	95	107	105	188
105°	741	814	149	175	185	792
115°	1401	1443	1504	375	200	1380
125°	1982	2013	2060	2077	2084	1767
135°	2452	2491	2513	2538	2533	1894
145°	2845	2842	2883	2900	2888	1779
155°	3132	3110	3140	3154	3135	1443
165°	3300	3286	3293	3310	3293	932
175°	3376	3359	3364	3381	3356	321
180°	3368	3368	3368	3368	3368	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3666.8	3666.8	3666.8	3666.8	3666.8
2.5°	3683.3	3666.8	3630.2	3663.6	3656.9
5°	3666.8	3650.3	3606.9	3636.9	3627.0
7.5°	3636.9	3617.1	3570.6	3583.7	3567.1
10°	3597.0	3573.9	3507.7	3497.5	3477.7
12.5°	3547.5	3517.5	3427.7	3408.0	3371.4
15°	3487.6	3451.0	3338.3	3275.3	3242.2
17.5°	3417.8	3364.7	3225.3	3152.4	3099.2
20°	3338.3	3271.8	3106.0	3023.2	2949.9
22.5°	3252.0	3175.6	2983.1	2870.4	2820.7
25°	3165.8	3059.5	2840.5	2704.6	2654.6
27.5°	3062.9	2949.9	2707.7	2551.8	2475.4
30°	2953.5	2827.1	2561.7	2392.7	2302.8
32.5°	2847.1	2694.4	2422.6	2223.3	2140.3
35°	2727.8	2558.5	2266.6	2057.5	1984.2
37.5°	2611.6	2428.9	2120.5	1891.3	1808.6
40°	2488.8	2289.9	1967.7	1732.1	1645.9
42.5°	2362.7	2150.5	1815.2	1569.6	1486.7
45°	2230.0	2007.5	1659.3	1423.4	1343.9
47.5°	2104.0	1868.4	1510.0	1274.1	1201.3
50°	1964.5	1729.0	1364.0	1134.7	1065.3
52.5°	1828.3	1579.3	1224.4	1005.5	942.5
55°	1695.6	1436.8	1078.4	879.4	816.4
57.5°	1559.7	1294.2	949.2	763.3	710.1
60°	1420.2	1154.8	812.9	643.9	590.8
62.5°	1284.3	1018.8	696.8	537.6	511.2
65°	1144.9	875.9	577.3	464.8	454.5
67.5°	1012.2	743.3	464.8	408.0	398.2
70°	872.8	614.1	384.8	351.7	338.4
72.5°	740.0	494.3	321.8	295.4	288.7
75°	610.5	378.2	265.5	242.2	239.1
77.5°	481.3	268.6	209.2	195.7	189.1
80°	361.5	192.6	159.1	146.1	146.1
82.5°	252.1	129.5	109.5	102.8	102.8
85°	142.6	72.9	63.0	63.0	63.0
87.5°	53.1	26.4	26.4	23.3	23.3
90°	2.3	29.3	48.6	61.1	65.7
92.5°	61.1	51.2	58.4	63.4	65.7
95°	158.4	77.9	94.9	107.4	104.8
97.5°	285.1	85.4	124.2	131.6	134.0
100°	431.5	97.6	139.0	158.4	163.2
102.5°	592.2	587.5	143.8	170.5	178.0
105°	740.9	814.2	148.7	175.4	185.2
107.5°	914.0	974.8	153.7	180.3	190.2
110°	1079.8	1130.8	426.6	182.9	192.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1235.9	1279.6	1238.2	187.5	195.1
115°	1401.4	1442.8	1503.9	375.4	200.0
117.5°	1545.3	1594.0	1635.6	1286.9	648.3
120°	1706.2	1742.7	1786.7	1815.9	1486.8
122.5°	1842.6	1881.6	1930.5	1945.0	1947.6
125°	1981.5	2013.3	2059.6	2076.7	2083.9
127.5°	2108.2	2142.4	2179.2	2203.5	2205.8
130°	2227.8	2266.9	2293.5	2320.4	2318.1
132.5°	2349.6	2381.5	2408.1	2430.2	2427.8
135°	2452.1	2491.1	2512.9	2537.5	2532.6
137.5°	2559.2	2588.4	2613.0	2637.3	2630.1
140°	2663.9	2683.7	2710.3	2732.2	2720.2
142.5°	2752.0	2769.1	2800.6	2820.0	2807.9
145°	2844.6	2841.9	2883.4	2900.5	2888.3
147.5°	2924.8	2917.6	2958.9	2971.1	2961.5
150°	3003.0	2985.9	3024.9	3039.3	3027.2
152.5°	3068.6	3049.2	3085.7	3100.4	3083.4
155°	3132.0	3110.3	3139.5	3154.0	3134.6
157.5°	3183.3	3163.9	3185.8	3202.9	3183.3
160°	3227.2	3212.4	3227.2	3241.7	3224.6
162.5°	3266.0	3251.5	3263.7	3280.8	3258.8
165°	3300.2	3285.6	3293.0	3310.0	3293.0
167.5°	3327.1	3312.4	3319.8	3336.9	3314.9
170°	3349.1	3334.3	3339.2	3356.3	3334.3
172.5°	3363.6	3349.1	3353.9	3371.0	3349.1
175°	3375.7	3358.6	3363.6	3380.6	3356.3
177.5°	3380.6	3363.6	3366.1	3383.2	3361.3
180°	3368.5	3368.5	3368.5	3368.5	3368.5



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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	11.44	12.22	12.46	13.24	14.61	7.40	8.18	8.42	9.21	10.57
	3H	13.11	13.81	14.14	14.84	16.23	8.58	9.28	9.61	10.31	11.70
	4H	13.72	14.37	14.76	15.41	16.80	9.03	9.68	10.07	10.72	12.11
	6H	14.13	14.74	15.18	15.78	17.18	9.34	9.94	10.39	10.98	12.39
	8H	14.25	14.83	15.31	15.88	17.29	9.42	10.00	10.48	11.06	12.46
	12H	14.31	14.86	15.37	15.91	17.33	9.46	10.01	10.52	11.06	12.48
4H	2H	11.45	12.11	12.50	13.15	14.54	7.99	8.65	9.04	9.68	11.08
	3H	13.27	13.82	14.33	14.88	16.29	9.33	9.88	10.38	10.94	12.35
	4H	13.96	14.46	15.02	15.51	16.94	9.87	10.37	10.93	11.42	12.85
	6H	14.47	14.90	15.54	15.97	17.40	10.28	10.71	11.35	11.79	13.21
	8H	14.64	15.04	15.71	16.11	17.55	10.40	10.80	11.47	11.87	13.31
	12H	14.73	15.09	15.82	16.17	17.62	10.46	10.82	11.55	11.91	13.35
8H	4H	13.92	14.32	14.99	15.39	16.83	10.14	10.54	11.21	11.61	13.05
	6H	14.48	14.81	15.57	15.92	17.36	10.65	10.98	11.74	12.09	13.53
	8H	14.69	14.98	15.79	16.08	17.53	10.84	11.13	11.94	12.22	13.68
	12H	14.83	15.08	15.93	16.17	17.67	10.95	11.20	12.05	12.29	13.79
12H	4H	13.87	14.23	14.96	15.32	16.76	10.14	10.51	11.23	11.59	13.03
	6H	14.45	14.75	15.56	15.84	17.30	10.70	10.99	11.80	12.08	13.54
	8H	14.67	14.92	15.77	16.01	17.51	10.90	11.16	12.00	12.25	13.74