

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: P904127

Luminaire Tested: DFN2DIP-SQ4F0-110D080US830-RLLONL

Issue Date: 11/21/2024

**Test Information**

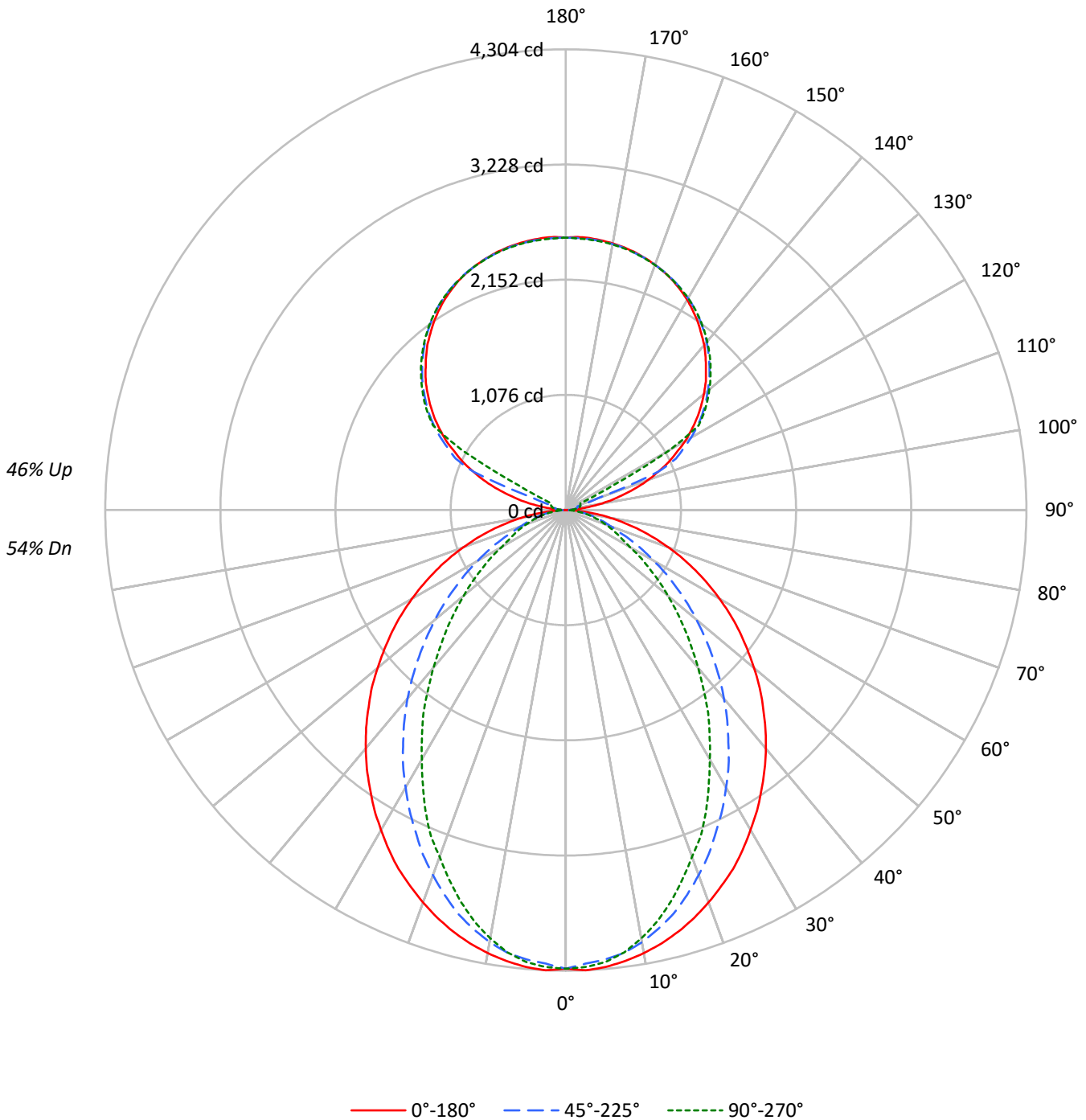
Test Method: LM-79-2019  
Report Number: P904127  
REPORT IS A COMBINATION OF REPORTS P901626 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-110D080US830-RLLONL  
Description: 4 foot, 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: 16277.7 lumens  
Efficiency: N/A  
Efficacy: 98.9 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): 164.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P904127  
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US830-RLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P904127

CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US830-RLLONL

**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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	60	60	60	54
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52	54	53	52	47
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44	48	46	44	40
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38	43	40	38	34
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33	39	36	33	30
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30	35	32	30	26
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26	32	29	26	23
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24	29	26	24	21
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21	27	24	21	19
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19	25	22	19	17
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18	23	20	18	16

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

	0°	45°	90°
0°	3007	3007	3007
5°	3012	2960	2979
10°	2982	2902	2883
15°	2941	2807	2734
20°	2886	2675	2550
25°	2831	2527	2374
30°	2756	2376	2149
35°	2683	2213	1951
40°	2608	2044	1725
45°	2522	1857	1520
50°	2432	1668	1319
55°	2339	1466	1126
60°	2231	1255	928
65°	2106	1040	836
70°	1955	839	758
75°	1766	741	692
80°	1491	624	603
85°	1038	419	459

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2522 cd/sqm



TEST NUMBER: P904127

CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US830-RLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	401.6	2.5
10°-20°	1102.5	6.8
20°-30°	1547.8	9.5
30°-40°	1687.2	10.4
40°-50°	1550.8	9.5
50°-60°	1217.9	7.5
60°-70°	792.7	4.9
70°-80°	408.1	2.5
80°-90°	108.6	0.7
90°-100°	83.9	0.5
100°-110°	312.8	1.9
110°-120°	829.6	5.1
120°-130°	1376.0	8.5
130°-140°	1461.6	9.0
140°-150°	1358.4	8.3
150°-160°	1092.1	6.7
160°-170°	703.7	4.3
170°-180°	242.2	1.5
0°-30°	3051.9	18.7
0°-40°	4739.1	29.1
0°-60°	7507.8	46.1
0°-90°	8817.2	54.2
90°-120°	1226.4	7.5
90°-150°	5422.4	33.3
90°-180°	7460.0	45.8
0°-180°	16277.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4239	406
15°	4076	4033	3901	3828	3789	1148
25°	3700	3575	3319	3161	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2013
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	2	22	37	46	50	15
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2501	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	



TEST NUMBER: P904127

CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US830-RLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4285.1	4285.1	4285.1	4285.1	4285.1
2.5°	4304.4	4285.1	4242.3	4281.4	4273.6
5°	4285.1	4265.8	4215.1	4250.1	4238.6
7.5°	4250.1	4227.0	4172.7	4188.0	4168.6
10°	4203.6	4176.4	4099.1	4087.1	4064.1
12.5°	4145.6	4110.6	4005.7	3982.6	3939.8
15°	4075.6	4032.9	3901.2	3827.6	3788.8
17.5°	3994.2	3932.1	3769.1	3683.9	3621.8
20°	3901.2	3823.4	3629.6	3532.9	3447.3
22.5°	3800.4	3711.1	3486.1	3354.4	3296.4
25°	3699.6	3575.3	3319.4	3160.6	3102.2
27.5°	3579.5	3447.3	3164.3	2982.0	2892.8
30°	3451.5	3303.8	2993.6	2796.1	2691.1
32.5°	3327.3	3148.7	2831.0	2598.2	2501.1
35°	3187.8	2989.8	2648.8	2404.4	2318.8
37.5°	3052.0	2838.5	2478.0	2210.2	2113.6
40°	2908.4	2676.0	2299.5	2024.2	1923.4
42.5°	2761.1	2513.0	2121.4	1834.2	1737.5
45°	2606.0	2346.0	1939.1	1663.4	1570.5
47.5°	2458.7	2183.5	1764.6	1488.9	1403.8
50°	2295.8	2020.5	1593.9	1326.1	1245.0
52.5°	2136.6	1845.7	1431.0	1175.1	1101.4
55°	1981.4	1679.0	1260.2	1027.7	954.1
57.5°	1822.7	1512.4	1109.2	892.0	829.8
60°	1659.7	1349.5	950.0	752.5	690.4
62.5°	1500.9	1190.7	814.3	628.3	597.4
65°	1337.9	1023.6	674.8	543.1	531.1
67.5°	1182.9	868.6	543.1	476.8	465.3
70°	1019.9	717.6	449.7	411.0	395.4
72.5°	864.8	577.7	376.1	345.2	337.3
75°	713.4	441.9	310.2	283.0	279.4
77.5°	562.4	314.0	244.4	228.8	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.2	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.8	134.5
105°	559.8	615.1	112.4	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.9	854.3	322.3	138.2	145.4



TEST NUMBER: P904127

CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US830-RLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	933.7	966.7	935.5	141.7	147.4
115°	1058.8	1090.1	1136.1	283.6	151.1
117.5°	1167.4	1204.2	1235.7	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.9	1123.2
122.5°	1391.9	1421.5	1458.5	1469.4	1471.4
125°	1496.9	1521.0	1555.9	1568.9	1574.3
127.5°	1592.7	1618.5	1646.3	1664.6	1666.4
130°	1683.0	1712.5	1732.7	1753.0	1751.2
132.5°	1775.1	1799.1	1819.3	1835.9	1834.1
135°	1852.5	1882.0	1898.4	1917.0	1913.3
137.5°	1933.4	1955.5	1974.1	1992.4	1987.0
140°	2012.5	2027.4	2047.6	2064.2	2054.9
142.5°	2079.1	2091.9	2115.7	2130.4	2121.2
145°	2149.0	2147.0	2178.3	2191.2	2182.0
147.5°	2209.6	2204.1	2235.3	2244.6	2237.3
150°	2268.6	2255.7	2285.2	2296.1	2287.0
152.5°	2318.3	2303.6	2331.1	2342.3	2329.4
155°	2366.2	2349.8	2371.8	2382.7	2368.1
157.5°	2404.8	2390.2	2406.8	2419.7	2404.8
160°	2438.1	2427.0	2438.1	2449.0	2436.1
162.5°	2467.4	2456.5	2465.6	2478.5	2461.9
165°	2493.2	2482.3	2487.7	2500.6	2487.7
167.5°	2513.5	2502.4	2508.0	2520.9	2504.3
170°	2530.2	2518.9	2522.7	2535.6	2518.9
172.5°	2541.1	2530.2	2533.8	2546.7	2530.2
175°	2550.2	2537.3	2541.1	2553.9	2535.6
177.5°	2553.9	2541.1	2543.0	2555.9	2539.3
180°	2544.8	2544.8	2544.8	2544.8	2544.8



TEST NUMBER: P904127  
 CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US830-RLONL

**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	11.37	12.23	12.29	13.17	14.38	7.33	8.19	8.25	9.13	10.35
	3H	13.05	13.82	13.99	14.77	16.01	8.52	9.29	9.46	10.24	11.48
	4H	13.66	14.39	14.62	15.35	16.60	8.97	9.70	9.92	10.66	11.90
	6H	14.09	14.76	15.06	15.72	16.98	9.29	9.97	10.26	10.93	12.19
	8H	14.22	14.86	15.19	15.84	17.09	9.39	10.03	10.36	11.00	12.26
	12H	14.28	14.89	15.26	15.86	17.14	9.43	10.04	10.41	11.01	12.29
4H	2H	11.39	12.12	12.35	13.07	14.32	7.93	8.66	8.89	9.61	10.86
	3H	13.23	13.83	14.19	14.82	16.08	9.28	9.89	10.25	10.87	12.13
	4H	13.92	14.48	14.90	15.45	16.74	9.83	10.39	10.81	11.37	12.65
	6H	14.44	14.92	15.43	15.92	17.21	10.25	10.73	11.25	11.73	13.02
	8H	14.62	15.07	15.61	16.06	17.36	10.39	10.83	11.38	11.83	13.12
	12H	14.72	15.12	15.73	16.13	17.44	10.45	10.85	11.46	11.86	13.17
8H	4H	13.89	14.34	14.88	15.33	16.63	10.12	10.56	11.11	11.56	12.86
	6H	14.47	14.83	15.48	15.87	17.16	10.64	11.01	11.66	12.04	13.34
	8H	14.68	15.01	15.71	16.03	17.35	10.83	11.16	11.86	12.18	13.49
	12H	14.83	15.11	15.86	16.13	17.49	10.95	11.24	11.98	12.26	13.61
12H	4H	13.85	14.25	14.86	15.26	16.56	10.13	10.53	11.14	11.54	12.84
	6H	14.44	14.76	15.47	15.79	17.10	10.69	11.01	11.71	12.04	13.35
	8H	14.67	14.95	15.69	15.97	17.33	10.90	11.19	11.93	12.21	13.57