

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: P912217

Luminaire Tested: DFN2DIP-SQ4F0-080D120US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912217
REPORT IS A COMBINATION OF REPORTS P901691 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D120US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

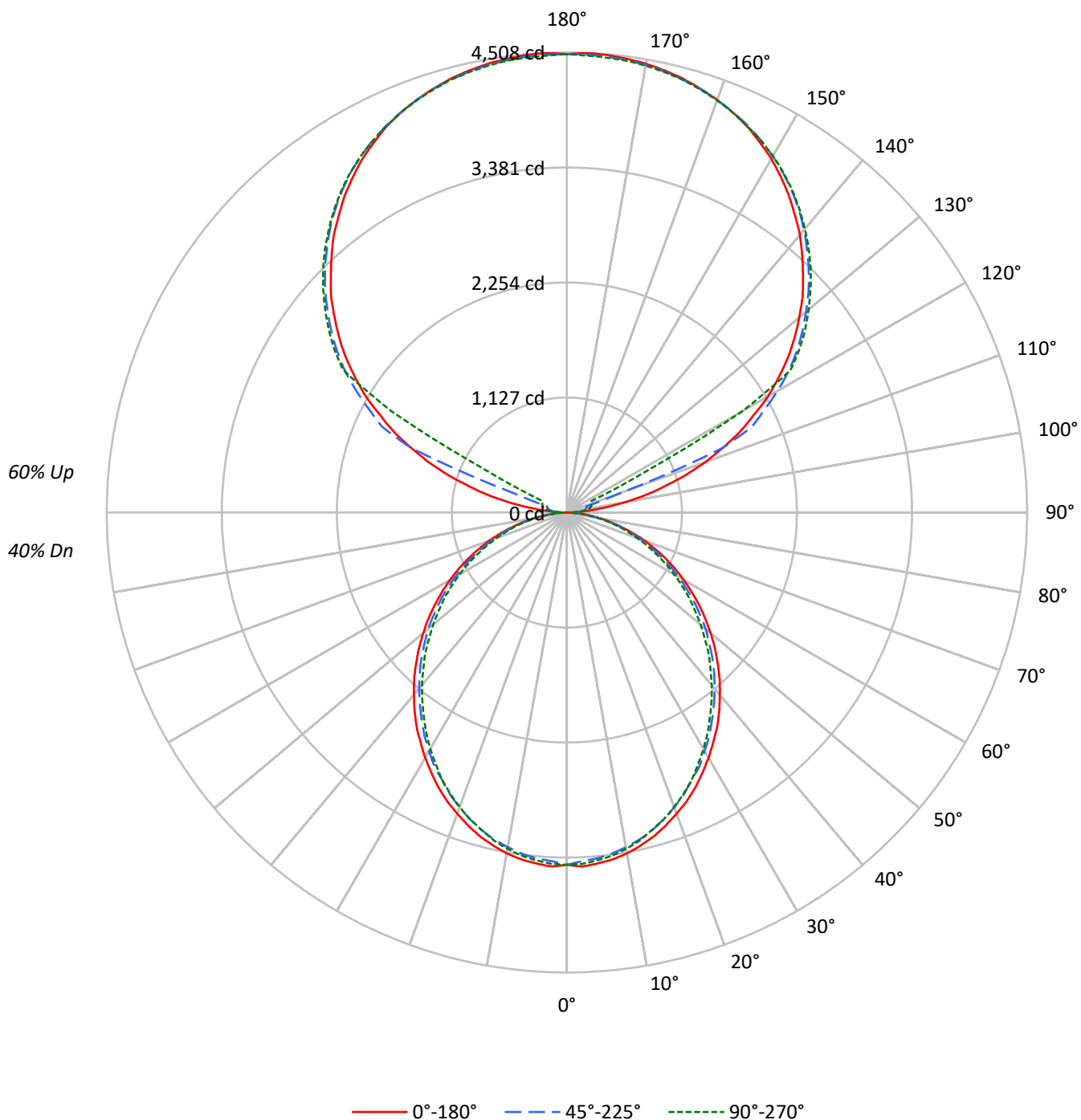
Lumens per Lamp: N/A
Luminaire Lumens: 21958.2 lumens
Efficiency: N/A
Efficacy: 136.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 161.5
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

TEST NUMBER: P912217

CATALOG NUMBER: DFN2DIP-SQ4F0-080D120US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912217

CATALOG NUMBER: DFN2DIP-SQ4F0-080D120US850-FLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2422	2422	2422
5°	2426	2389	2405
10°	2406	2357	2373
15°	2371	2319	2323
20°	2323	2266	2272
25°	2276	2202	2212
30°	2216	2142	2136
35°	2159	2072	2056
40°	2090	2001	1980
45°	2020	1930	1902
50°	1945	1855	1811
55°	1865	1769	1728
60°	1775	1666	1633
65°	1678	1560	1521
70°	1553	1431	1400
75°	1380	1277	1290
80°	1172	1080	1078
85°	848	739	724

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2407 cd/sqm

TEST NUMBER: P912217

CATALOG NUMBER: DFN2DIP-SQ4F0-080D120US850-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	1.5
10°-20°	914.2	4.2
20°-30°	1343.5	6.1
30°-40°	1560.4	7.1
40°-50°	1558.4	7.1
50°-60°	1358.9	6.2
60°-70°	1004.5	4.6
70°-80°	568.4	2.6
80°-90°	157.9	0.7
90°-100°	148.1	0.7
100°-110°	552.1	2.5
110°-120°	1464.2	6.7
120°-130°	2428.5	11.1
130°-140°	2579.6	11.7
140°-150°	2397.5	10.9
150°-160°	1927.5	8.8
160°-170°	1242.0	5.7
170°-180°	427.5	1.9
0°-30°	2582.6	11.8
0°-40°	4143.0	18.9
0°-60°	7060.4	32.2
0°-90°	8791.2	40.0
90°-120°	2164.4	9.9
90°-150°	9570.0	43.6
90°-180°	13167.0	60.0
0°-180°	21958.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	3	39	65	81	88	20
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	

TEST NUMBER: P912217

CATALOG NUMBER: DFN2DIP-SQ4F0-080D120US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6

TEST NUMBER: P912217

CATALOG NUMBER: DFN2DIP-SQ4F0-080D120US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3

TEST NUMBER: P912217

CATALOG NUMBER: DFN2DIP-SQ4F0-080D120US850-FLLONL

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	9.36	10.14	10.40	11.18	12.59	8.92	9.70	9.95	10.74	12.15
	3H	11.02	11.72	12.07	12.77	14.20	10.53	11.23	11.58	12.28	13.71
	4H	11.61	12.27	12.67	13.32	14.76	11.11	11.77	12.17	12.83	14.26
	6H	12.01	12.61	13.07	13.67	15.12	11.50	12.11	12.57	13.17	14.62
	8H	12.11	12.69	13.18	13.76	15.20	11.61	12.19	12.68	13.26	14.70
	12H	12.16	12.71	13.24	13.78	15.24	11.65	12.20	12.73	13.27	14.73
4H	2H	9.81	10.47	10.88	11.53	12.96	9.46	10.12	10.52	11.17	12.61
	3H	11.68	12.23	12.75	13.31	14.76	11.27	11.82	12.34	12.90	14.35
	4H	12.39	12.90	13.47	13.97	15.44	11.97	12.47	13.05	13.55	15.01
	6H	12.90	13.34	13.99	14.44	15.90	12.47	12.91	13.56	14.00	15.46
	8H	13.05	13.46	14.14	14.55	16.03	12.62	13.02	13.71	14.11	15.59
	12H	13.13	13.49	14.23	14.60	16.08	12.68	13.04	13.78	14.15	15.63
8H	4H	12.58	12.99	13.67	14.07	15.55	12.20	12.61	13.29	13.70	15.18
	6H	13.21	13.55	14.32	14.68	16.15	12.83	13.16	13.94	14.30	15.77
	8H	13.44	13.73	14.55	14.84	16.34	13.04	13.34	14.16	14.45	15.94
	12H	13.57	13.82	14.69	14.93	16.47	13.16	13.41	14.28	14.52	16.05
12H	4H	12.56	12.93	13.67	14.03	15.51	12.19	12.56	13.30	13.66	15.15
	6H	13.24	13.54	14.36	14.65	16.14	12.87	13.16	13.99	14.28	15.77
	8H	13.48	13.74	14.61	14.85	16.38	13.10	13.36	14.22	14.47	16.00