

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: P912253

Luminaire Tested: DFN2DIP-SQ4F0-090D120US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912253
REPORT IS A COMBINATION OF REPORTS P901693 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D120US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

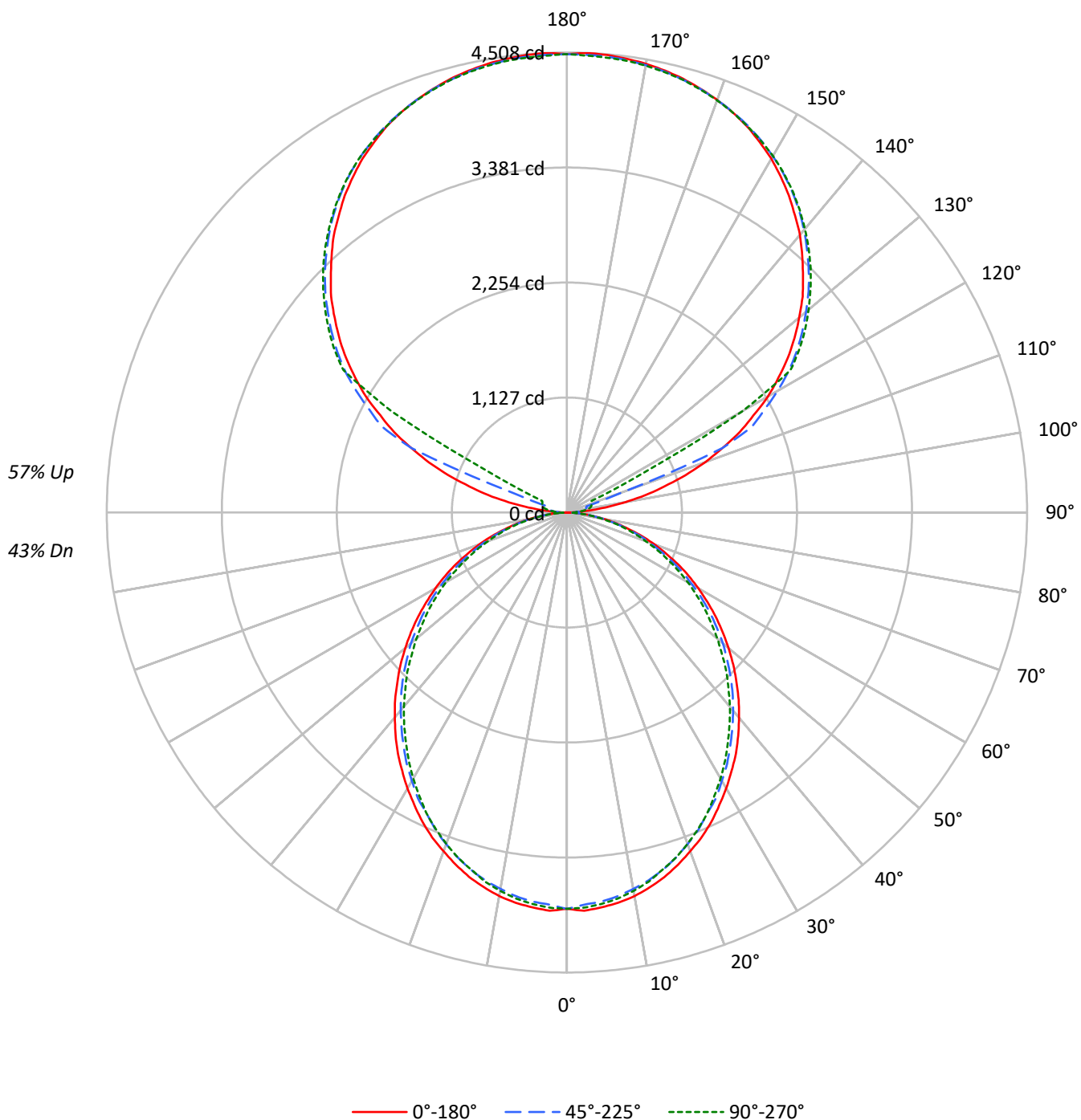
Lumens per Lamp: N/A
Luminaire Lumens: 23056.1 lumens
Efficiency: N/A
Efficacy: 133.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912253

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912253

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US850-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	96	96	96	96	79	79	79	64	64	64	50	50	50
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35
3	80	71	63	58	73	65	58	53	54	49	45	44	40	38	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	32	52	41	34	29	35	29	25	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2725	2725	2725
5°	2729	2688	2706
10°	2707	2652	2670
15°	2667	2609	2614
20°	2614	2549	2556
25°	2560	2477	2489
30°	2493	2410	2403
35°	2429	2331	2313
40°	2351	2251	2227
45°	2273	2171	2139
50°	2188	2087	2037
55°	2098	1990	1944
60°	1997	1874	1837
65°	1887	1755	1711
70°	1747	1610	1575
75°	1553	1436	1451
80°	1319	1214	1213
85°	953	831	815

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2407 cd/sqm

TEST NUMBER: P912253

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US850-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	1.6
10°-20°	1028.5	4.5
20°-30°	1511.4	6.6
30°-40°	1755.4	7.6
40°-50°	1753.3	7.6
50°-60°	1528.8	6.6
60°-70°	1130.1	4.9
70°-80°	639.4	2.8
80°-90°	176.7	0.8
90°-100°	148.1	0.6
100°-110°	552.1	2.4
110°-120°	1464.2	6.4
120°-130°	2428.5	10.5
130°-140°	2579.6	11.2
140°-150°	2397.5	10.4
150°-160°	1927.5	8.4
160°-170°	1242.0	5.4
170°-180°	427.5	1.9
0°-30°	2905.4	12.6
0°-40°	4660.9	20.2
0°-60°	7942.9	34.5
0°-90°	9889.1	42.9
90°-120°	2164.4	9.4
90°-150°	9570.0	41.5
90°-180°	13167.0	57.1
0°-180°	23056.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	3	39	65	81	88	21
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: P912253

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
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: P912253

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US850-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: P912253

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US850-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	10.07	10.87	11.09	11.90	13.27	9.63	10.43	10.64	11.45	12.82
	3H	11.73	12.45	12.76	13.48	14.87	11.24	11.96	12.27	12.99	14.38
	4H	12.32	13.00	13.36	14.04	15.43	11.83	12.51	12.87	13.54	14.94
	6H	12.72	13.35	13.77	14.39	15.80	12.22	12.85	13.27	13.89	15.30
	8H	12.83	13.42	13.88	14.48	15.88	12.32	12.92	13.38	13.98	15.38
	12H	12.87	13.44	13.93	14.49	15.92	12.36	12.93	13.42	13.98	15.41
4H	2H	10.53	11.21	11.57	12.24	13.64	10.17	10.85	11.22	11.89	13.29
	3H	12.39	12.96	13.45	14.02	15.43	11.98	12.55	13.04	13.62	15.03
	4H	13.11	13.63	14.17	14.68	16.12	12.68	13.20	13.74	14.26	15.69
	6H	13.62	14.07	14.69	15.15	16.58	13.19	13.64	14.26	14.72	16.14
	8H	13.77	14.19	14.84	15.26	16.70	13.34	13.75	14.41	14.83	16.27
	12H	13.85	14.22	14.93	15.31	16.76	13.40	13.77	14.48	14.86	16.31
8H	4H	13.30	13.72	14.37	14.79	16.23	12.92	13.34	13.99	14.41	15.85
	6H	13.93	14.28	15.03	15.39	16.83	13.55	13.89	14.64	15.01	16.45
	8H	14.16	14.46	15.26	15.55	17.01	13.76	14.07	14.86	15.16	16.62
	12H	14.29	14.55	15.39	15.65	17.14	13.88	14.14	14.98	15.24	16.73
12H	4H	13.28	13.66	14.37	14.75	16.19	12.91	13.29	14.00	14.38	15.82
	6H	13.96	14.27	15.06	15.36	16.82	13.59	13.89	14.69	14.99	16.45
	8H	14.20	14.47	15.31	15.56	17.06	13.82	14.09	14.93	15.18	16.68