

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: P909565

Luminaire Tested: DFN2DIP-SQ4F0-100D140US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909565
REPORT IS A COMBINATION OF REPORTS P901713 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US840-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

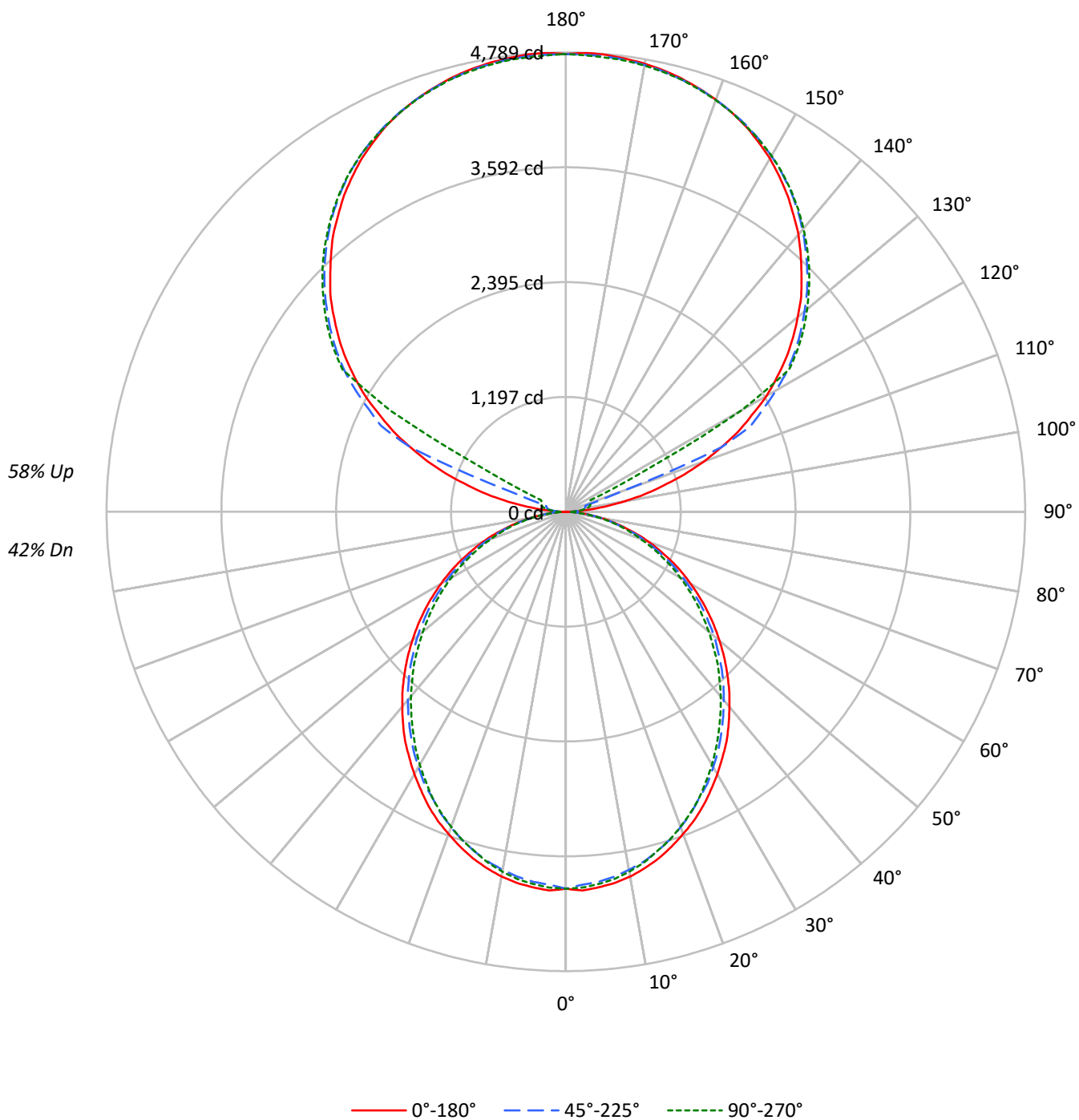
Lumens per Lamp: N/A
Luminaire Lumens: 23994.4 lumens
Efficiency: N/A
Efficacy: 120.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 198.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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
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	63	63	63	49	49	49
1	96	92	88	84	87	84	80	78	69	67	65	55	54	52	43	42	41
2	87	80	74	69	79	73	68	64	60	57	53	49	46	44	38	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	40	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	35	32	30	27	25
5	67	55	47	41	61	51	44	39	42	37	33	34	30	27	27	24	22
6	62	50	42	36	56	46	39	33	38	33	29	31	27	24	24	22	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	41	33	28	48	37	31	26	31	26	22	26	22	19	20	18	15
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	26	21	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2757	2757	2757
5°	2762	2719	2738
10°	2739	2683	2702
15°	2699	2640	2644
20°	2644	2579	2586
25°	2590	2506	2518
30°	2522	2438	2432
35°	2458	2358	2340
40°	2379	2277	2253
45°	2300	2196	2165
50°	2213	2112	2061
55°	2123	2013	1967
60°	2021	1896	1859
65°	1910	1776	1731
70°	1768	1629	1594
75°	1571	1453	1469
80°	1334	1229	1227
85°	964	841	825

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2559 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	1.5
10°-20°	1040.6	4.3
20°-30°	1529.3	6.4
30°-40°	1776.1	7.4
40°-50°	1773.9	7.4
50°-60°	1546.8	6.4
60°-70°	1143.4	4.8
70°-80°	646.9	2.7
80°-90°	179.2	0.7
90°-100°	157.3	0.7
100°-110°	586.5	2.4
110°-120°	1555.5	6.5
120°-130°	2580.0	10.8
130°-140°	2740.5	11.4
140°-150°	2547.0	10.6
150°-160°	2047.7	8.5
160°-170°	1319.5	5.5
170°-180°	454.2	1.9
0°-30°	2939.7	12.3
0°-40°	4715.8	19.7
0°-60°	8036.5	33.5
0°-90°	10006.1	41.7
90°-120°	2299.4	9.6
90°-150°	10166.9	42.4
90°-180°	13988.0	58.3
0°-180°	23994.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	3	41	69	86	93	22
95°	224	110	134	152	148	266
105°	1050	1153	211	248	262	1121
115°	1985	2044	2130	532	283	1954
125°	2807	2852	2918	2942	2952	2503
135°	3473	3529	3560	3594	3587	2683
145°	4029	4026	4084	4108	4091	2520
155°	4436	4406	4447	4468	4440	2044
165°	4675	4654	4664	4689	4664	1321
175°	4782	4758	4764	4789	4754	455
180°	4771	4771	4771	4771	4771	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	3.2	41.4	68.9	86.5	93.1
92.5°	86.5	72.6	82.8	89.8	93.1
95°	224.3	110.3	134.5	152.1	148.5
97.5°	403.8	121.0	175.9	186.5	189.9
100°	611.3	138.1	196.8	224.3	231.3
102.5°	838.8	832.2	203.8	241.5	252.2
105°	1049.6	1153.3	210.8	248.4	262.4
107.5°	1294.7	1380.8	217.7	255.4	269.3
110°	1529.6	1601.8	604.3	259.1	272.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1750.6	1812.5	1753.9	265.7	276.3
115°	1985.2	2043.8	2130.3	531.8	283.3
117.5°	2188.9	2257.8	2316.8	1822.8	918.4
120°	2416.9	2468.5	2530.8	2572.2	2106.1
122.5°	2610.0	2665.3	2734.6	2755.1	2758.9
125°	2806.8	2851.9	2917.5	2941.6	2951.9
127.5°	2986.4	3034.7	3086.8	3121.2	3124.5
130°	3155.6	3211.1	3248.7	3286.9	3283.6
132.5°	3328.3	3373.4	3411.1	3442.2	3439.0
135°	3473.4	3528.8	3559.5	3594.3	3587.3
137.5°	3625.1	3666.5	3701.4	3735.8	3725.6
140°	3773.6	3801.4	3839.1	3870.3	3853.0
142.5°	3898.2	3922.3	3967.1	3994.5	3977.3
145°	4029.4	4025.6	4084.3	4108.5	4091.3
147.5°	4143.0	4132.7	4191.3	4208.5	4195.0
150°	4253.7	4229.4	4284.8	4305.3	4288.1
152.5°	4346.7	4319.2	4370.9	4391.8	4367.6
155°	4436.4	4405.7	4447.1	4467.6	4440.2
157.5°	4509.0	4481.6	4512.8	4536.9	4509.0
160°	4571.4	4550.5	4571.4	4591.9	4567.7
162.5°	4626.3	4605.8	4623.1	4647.2	4616.1
165°	4674.7	4654.2	4664.5	4688.6	4664.5
167.5°	4712.8	4691.9	4702.5	4726.8	4695.6
170°	4743.9	4723.0	4730.0	4754.2	4723.0
172.5°	4764.4	4743.9	4750.9	4775.1	4743.9
175°	4781.7	4757.5	4764.4	4788.7	4754.2
177.5°	4788.7	4764.4	4768.2	4792.3	4761.2
180°	4771.4	4771.4	4771.4	4771.4	4771.4

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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	9.99	10.78	11.01	11.81	13.20	9.54	10.34	10.57	11.37	12.75
	3H	11.65	12.36	12.68	13.40	14.80	11.16	11.87	12.19	12.91	14.31
	4H	12.24	12.91	13.28	13.95	15.36	11.74	12.41	12.79	13.46	14.87
	6H	12.64	13.25	13.69	14.30	15.73	12.14	12.75	13.19	13.80	15.23
	8H	12.74	13.33	13.80	14.39	15.81	12.24	12.83	13.30	13.89	15.31
	12H	12.79	13.35	13.86	14.41	15.85	12.28	12.84	13.35	13.90	15.34
4H	2H	10.44	11.11	11.50	12.16	13.57	10.09	10.76	11.14	11.80	13.22
	3H	12.31	12.87	13.37	13.94	15.36	11.90	12.46	12.96	13.53	14.96
	4H	13.02	13.54	14.09	14.60	16.05	12.60	13.11	13.67	14.18	15.62
	6H	13.54	13.98	14.61	15.07	16.51	13.10	13.55	14.18	14.63	16.07
	8H	13.69	14.10	14.76	15.18	16.64	13.25	13.66	14.33	14.74	16.20
	12H	13.76	14.13	14.85	15.22	16.69	13.31	13.68	14.40	14.78	16.24
8H	4H	13.21	13.63	14.29	14.70	16.16	12.84	13.25	13.91	14.33	15.78
	6H	13.85	14.19	14.95	15.31	16.76	13.46	13.80	14.56	14.92	16.38
	8H	14.07	14.37	15.18	15.47	16.94	13.68	13.98	14.78	15.08	16.55
	12H	14.20	14.46	15.31	15.56	17.07	13.79	14.05	14.90	15.15	16.66
12H	4H	13.19	13.57	14.29	14.66	16.12	12.83	13.20	13.92	14.29	15.76
	6H	13.88	14.17	14.98	15.28	16.75	13.50	13.80	14.61	14.91	16.38
	8H	14.12	14.38	15.23	15.48	16.99	13.74	14.00	14.85	15.10	16.61

END OF REPORT