

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: P926038

Luminaire Tested: DFN2DIP-SQ4F0-140D120US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926038
REPORT IS A COMBINATION OF REPORTS P900182 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US950-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

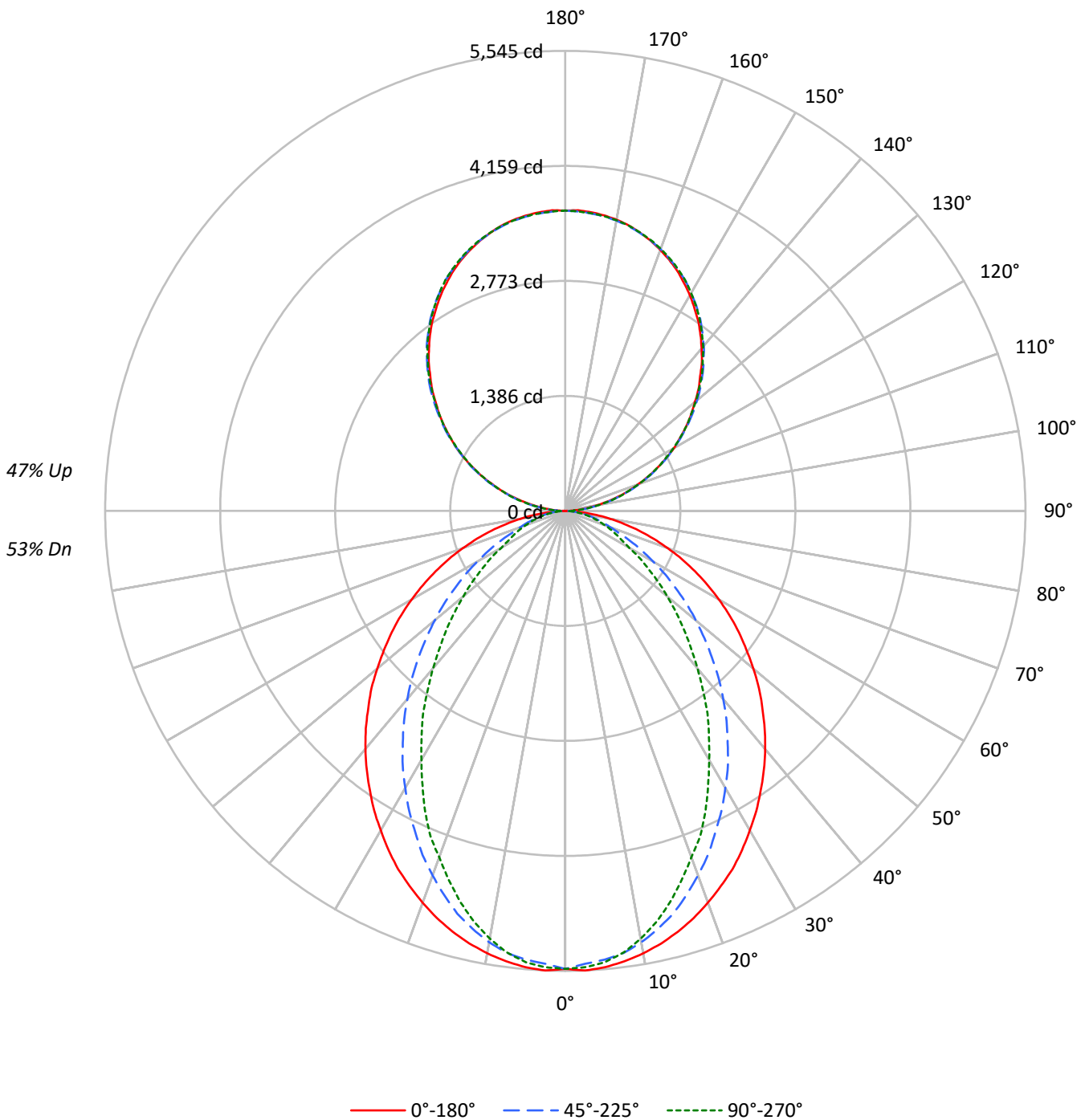
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 21484.1 lumens
Efficiency: N/A
Efficacy: 91.9 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): 233.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	59	59	59	53
1	99	95	91	88	92	88	85	82	75	73	71	64	62	60	53	52	51	53	52	51	46
2	91	83	77	72	84	78	72	68	67	63	59	56	54	51	47	45	43	47	45	43	39
3	83	74	67	61	77	69	62	57	59	54	51	50	47	44	42	40	38	42	40	38	34
4	76	66	58	52	70	61	54	49	53	48	44	45	41	38	38	35	33	38	35	33	29
5	70	59	51	45	65	55	48	43	48	42	38	41	37	33	34	31	29	34	31	29	26
6	65	53	45	39	60	50	42	37	43	38	33	37	33	30	31	28	26	31	28	26	23
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23	29	26	23	21
8	56	44	36	31	52	41	34	29	36	30	27	31	27	24	27	23	21	27	23	21	19
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	25	21	19	25	21	19	17
10	49	37	30	25	45	35	28	24	31	25	22	27	22	19	23	20	17	23	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3873	3873	3873
5°	3879	3813	3837
10°	3841	3739	3714
15°	3788	3616	3522
20°	3718	3446	3286
25°	3646	3256	3058
30°	3550	3061	2768
35°	3456	2851	2514
40°	3360	2634	2222
45°	3248	2392	1958
50°	3133	2149	1699
55°	3013	1889	1451
60°	2873	1616	1195
65°	2713	1339	1077
70°	2519	1081	976
75°	2275	955	891
80°	1922	803	777
85°	1337	540	591

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3248 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	517.3	2.4
10°-20°	1420.2	6.6
20°-30°	1993.9	9.3
30°-40°	2173.5	10.1
40°-50°	1997.7	9.3
50°-60°	1568.9	7.3
60°-70°	1021.2	4.8
70°-80°	525.7	2.4
80°-90°	144.5	0.7
90°-100°	224.0	1.0
100°-110°	711.8	3.3
110°-120°	1218.2	5.7
120°-130°	1602.1	7.5
130°-140°	1798.3	8.4
140°-150°	1763.5	8.2
150°-160°	1479.3	6.9
160°-170°	981.0	4.6
170°-180°	342.9	1.6
0°-30°	3931.5	18.3
0°-40°	6105.0	28.4
0°-60°	9671.6	45.0
0°-90°	11362.9	52.9
90°-120°	2154.1	10.0
90°-150°	7318.0	34.1
90°-180°	10121.0	47.1
0°-180°	21484.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5520	5520	5520	5520	5520	
5°	5520	5495	5430	5475	5460	523
15°	5250	5195	5026	4931	4881	1479
25°	4766	4606	4276	4072	3996	2192
35°	4106	3852	3412	3097	2987	2570
45°	3357	3022	2498	2143	2023	2593
55°	2552	2163	1623	1324	1229	2281
65°	1724	1319	869	700	684	1709
75°	919	569	400	365	360	972
85°	215	110	95	95	95	246
90°	3	39	107	100	104	21
95°	159	190	195	195	190	177
105°	657	666	672	678	678	693
115°	1222	1240	1234	1231	1222	1209
125°	1778	1805	1797	1787	1784	1589
135°	2300	2334	2340	2337	2328	1778
145°	2792	2814	2831	2835	2823	1745
155°	3193	3201	3211	3226	3217	1470
165°	3473	3470	3470	3492	3476	980
175°	3614	3605	3599	3620	3602	343
180°	3620	3620	3620	3620	3620	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5520.0	5520.0	5520.0	5520.0	5520.0
2.5°	5544.9	5520.0	5464.9	5515.3	5505.2
5°	5520.0	5495.1	5429.9	5475.0	5460.1
7.5°	5475.0	5445.2	5375.3	5395.0	5370.1
10°	5415.1	5380.1	5280.5	5265.0	5235.4
12.5°	5340.3	5295.3	5160.1	5130.4	5075.4
15°	5250.2	5195.1	5025.5	4930.7	4880.9
17.5°	5145.3	5065.3	4855.4	4745.7	4665.6
20°	5025.5	4925.3	4675.7	4551.2	4441.0
22.5°	4895.6	4780.7	4490.8	4321.1	4246.4
25°	4765.8	4605.7	4276.1	4071.5	3996.2
27.5°	4611.1	4441.0	4076.3	3841.5	3726.5
30°	4446.2	4256.0	3856.4	3601.9	3466.7
32.5°	4286.1	4056.1	3647.0	3347.0	3221.9
35°	4106.5	3851.6	3412.2	3097.4	2987.1
37.5°	3931.6	3656.5	3192.2	2847.2	2722.6
40°	3746.6	3447.2	2962.2	2607.7	2477.8
42.5°	3556.9	3237.3	2732.7	2362.8	2238.2
45°	3357.0	3022.1	2498.0	2142.8	2023.1
47.5°	3167.3	2812.8	2273.2	1918.1	1808.4
50°	2957.4	2602.9	2053.2	1708.2	1603.8
52.5°	2752.3	2377.6	1843.3	1513.7	1418.8
55°	2552.5	2162.9	1623.4	1324.0	1229.0
57.5°	2347.9	1948.3	1428.9	1149.1	1069.1
60°	2138.0	1738.4	1223.8	969.4	889.3
62.5°	1933.5	1533.8	1048.9	809.3	769.6
65°	1723.6	1318.6	869.2	699.6	684.2
67.5°	1523.7	1118.9	699.6	614.3	599.4
70°	1313.8	924.3	579.3	529.5	509.3
72.5°	1114.1	744.1	484.4	444.7	434.6
75°	919.0	569.3	399.6	364.6	359.8
77.5°	724.6	404.4	314.8	294.7	284.6
80°	544.4	289.9	239.5	220.0	220.0
82.5°	379.5	195.0	164.9	154.7	154.7
85°	214.6	109.7	94.8	94.8	94.8
87.5°	80.0	39.8	39.8	35.0	35.0
90°	3.2	39.3	106.9	100.5	103.7
92.5°	67.6	91.7	94.9	98.3	98.3
95°	159.3	189.9	195.4	195.4	189.9
97.5°	265.2	293.6	305.7	305.7	305.7
100°	387.5	412.6	421.3	421.3	418.0
102.5°	516.3	534.8	546.8	550.2	546.8
105°	657.1	665.8	672.4	677.8	677.8
107.5°	796.8	809.9	809.9	812.0	796.8
110°	932.2	949.6	949.6	949.6	940.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.4	1097.0	1093.7	1085.0	1078.4
115°	1222.5	1240.0	1234.5	1231.2	1222.5
117.5°	1365.5	1389.5	1374.2	1365.5	1356.8
120°	1509.6	1533.6	1509.6	1509.6	1499.8
122.5°	1640.6	1671.1	1655.9	1647.1	1640.6
125°	1778.1	1805.3	1796.7	1786.8	1783.5
127.5°	1912.4	1946.2	1934.1	1921.1	1912.4
130°	2037.8	2077.1	2071.7	2065.1	2053.1
132.5°	2178.6	2209.3	2211.4	2196.1	2187.4
135°	2299.8	2333.7	2340.3	2336.9	2328.2
137.5°	2435.2	2462.5	2467.9	2465.7	2452.6
140°	2554.1	2581.4	2596.7	2596.7	2584.7
142.5°	2676.4	2703.7	2712.4	2715.7	2703.7
145°	2792.1	2813.9	2831.4	2834.7	2822.7
147.5°	2895.8	2923.1	2936.2	2941.7	2929.6
150°	3002.8	3021.3	3033.3	3043.2	3033.3
152.5°	3097.7	3116.2	3131.6	3143.6	3131.6
155°	3192.7	3201.4	3211.3	3226.5	3216.7
157.5°	3274.6	3281.1	3286.5	3308.4	3293.1
160°	3347.7	3354.3	3357.5	3376.1	3362.9
162.5°	3415.3	3415.3	3418.7	3439.4	3424.1
165°	3473.2	3470.0	3470.0	3491.7	3476.5
167.5°	3525.6	3515.8	3515.8	3537.6	3522.4
170°	3564.9	3556.1	3552.9	3574.7	3556.1
172.5°	3592.2	3583.4	3580.2	3602.0	3583.4
175°	3614.0	3605.3	3598.8	3620.5	3602.0
177.5°	3626.1	3617.3	3610.7	3629.3	3610.7
180°	3620.5	3620.5	3620.5	3620.5	3620.5



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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	12.13	12.98	13.07	13.93	15.17	8.09	8.94	9.03	9.90	11.13
	3H	13.81	14.58	14.76	15.54	16.79	9.28	10.05	10.23	11.01	12.26
	4H	14.43	15.15	15.39	16.11	17.38	9.73	10.45	10.70	11.42	12.68
	6H	14.85	15.52	15.83	16.49	17.76	10.06	10.72	11.03	11.69	12.97
	8H	14.98	15.61	15.96	16.60	17.87	10.15	10.78	11.13	11.77	13.04
	12H	15.05	15.65	16.03	16.63	17.93	10.19	10.79	11.18	11.77	13.07
4H	2H	12.15	12.87	13.12	13.84	15.10	8.69	9.41	9.66	10.38	11.64
	3H	13.99	14.59	14.97	15.58	16.86	10.04	10.64	11.02	11.64	12.92
	4H	14.68	15.23	15.67	16.22	17.52	10.59	11.14	11.58	12.13	13.43
	6H	15.20	15.67	16.20	16.69	17.99	11.02	11.49	12.02	12.50	13.80
	8H	15.38	15.82	16.38	16.83	18.14	11.14	11.58	12.15	12.59	13.90
	12H	15.48	15.88	16.50	16.90	18.22	11.21	11.61	12.23	12.63	13.95
8H	4H	14.65	15.09	15.65	16.10	17.41	10.88	11.32	11.88	12.32	13.64
	6H	15.22	15.59	16.25	16.63	17.95	11.40	11.76	12.42	12.81	14.12
	8H	15.44	15.76	16.48	16.80	18.13	11.59	11.91	12.62	12.94	14.27
	12H	15.59	15.87	16.62	16.90	18.27	11.71	11.99	12.75	13.02	14.40
12H	4H	14.61	15.00	15.63	16.02	17.34	10.88	11.28	11.90	12.30	13.62
	6H	15.20	15.52	16.23	16.55	17.88	11.45	11.77	12.48	12.80	14.13
	8H	15.42	15.71	16.46	16.73	18.11	11.66	11.94	12.70	12.97	14.35