

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: P909663

Luminaire Tested: DFN2DIP-SQ4F0-140D100US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909663
REPORT IS A COMBINATION OF REPORTS P901666 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D100US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

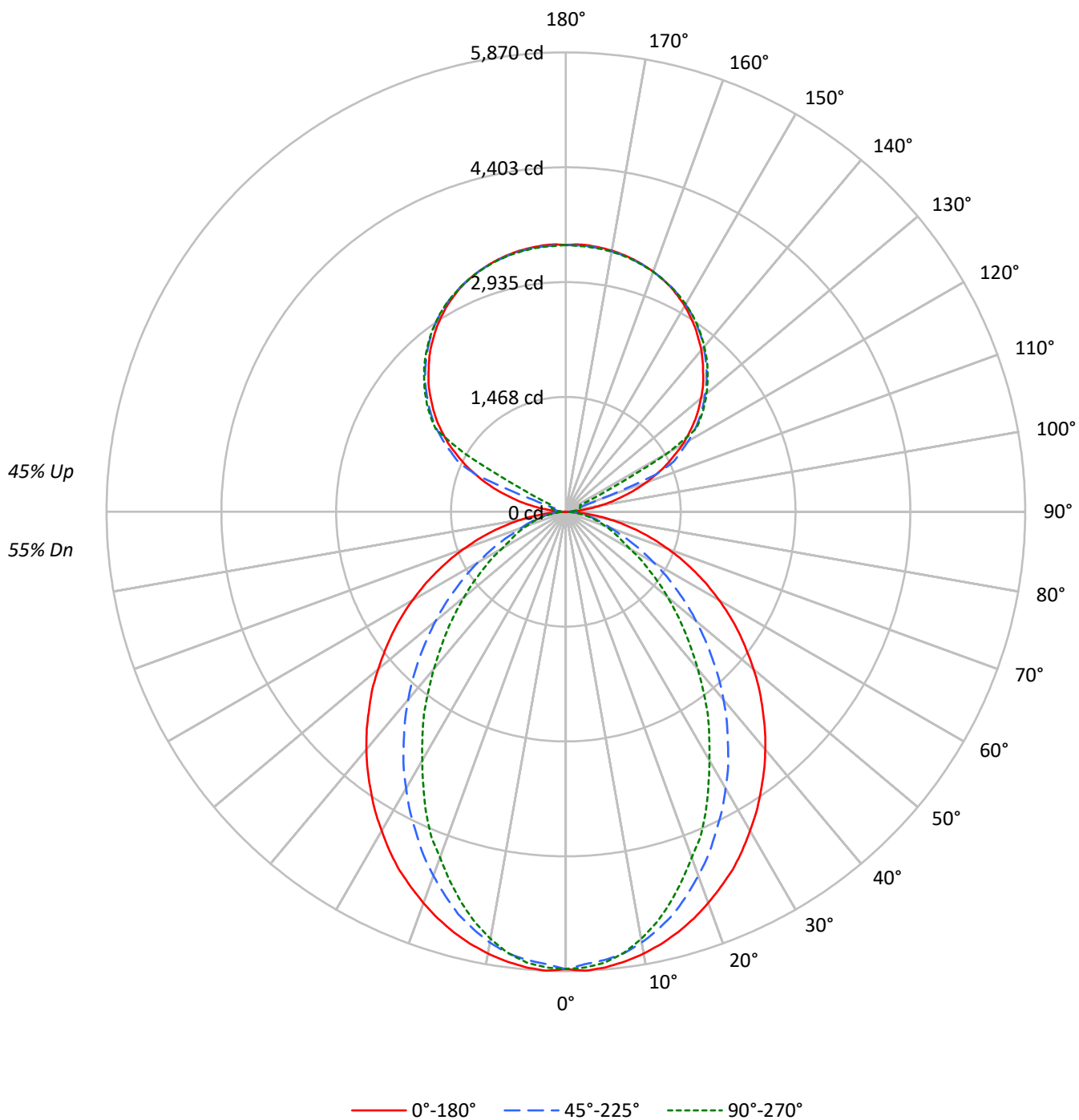
Lumens per Lamp: N/A
Luminaire Lumens: 22015.1 lumens
Efficiency: N/A
Efficacy: 100.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 218.5
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60
1	99	95	91	88	92	89	85	82	76	74	72	65	63	62	54	53	52
2	91	84	78	73	84	78	73	69	67	63	60	57	55	52	48	46	45
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	41	39
4	76	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34
5	70	59	51	45	65	55	48	43	48	43	38	42	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	25	22	19
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4100	4100	4100
5°	4107	4036	4062
10°	4066	3957	3931
15°	4010	3827	3728
20°	3936	3648	3478
25°	3860	3446	3237
30°	3758	3240	2930
35°	3658	3018	2661
40°	3557	2788	2352
45°	3439	2532	2072
50°	3316	2275	1799
55°	3189	1999	1536
60°	3042	1711	1265
65°	2872	1418	1140
70°	2666	1144	1034
75°	2408	1011	943
80°	2034	851	822
85°	1416	572	626

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3439 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	547.6	2.5
10°-20°	1503.4	6.8
20°-30°	2110.7	9.6
30°-40°	2300.8	10.5
40°-50°	2114.7	9.6
50°-60°	1660.7	7.5
60°-70°	1081.0	4.9
70°-80°	556.5	2.5
80°-90°	148.1	0.7
90°-100°	112.4	0.5
100°-110°	418.9	1.9
110°-120°	1111.1	5.0
120°-130°	1842.9	8.4
130°-140°	1957.5	8.9
140°-150°	1819.3	8.3
150°-160°	1462.7	6.6
160°-170°	942.5	4.3
170°-180°	324.4	1.5
0°-30°	4161.7	18.9
0°-40°	6462.5	29.4
0°-60°	10237.9	46.5
0°-90°	12023.4	54.6
90°-120°	1642.4	7.5
90°-150°	7262.1	33.0
90°-180°	9992.0	45.4
0°-180°	22015.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5843	5843	5843	5843	5843	
5°	5843	5817	5748	5796	5780	554
15°	5558	5499	5320	5219	5167	1566
25°	5045	4875	4526	4310	4230	2320
35°	4347	4077	3612	3279	3162	2721
45°	3554	3199	2644	2268	2142	2744
55°	2702	2290	1718	1402	1301	2414
65°	1824	1396	920	740	724	1809
75°	973	603	423	386	381	1029
85°	227	116	100	100	100	261
90°	2	30	49	62	66	21
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2876	2917	2935	2922	1800
155°	3169	3147	3176	3191	3172	1460
165°	3339	3324	3332	3349	3332	943
175°	3416	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5843.3	5843.3	5843.3	5843.3	5843.3
2.5°	5869.6	5843.3	5784.9	5838.2	5827.5
5°	5843.3	5816.9	5747.9	5795.6	5779.9
7.5°	5795.6	5764.1	5690.1	5710.9	5684.5
10°	5732.2	5695.1	5589.7	5573.3	5541.9
12.5°	5653.0	5605.4	5462.3	5430.9	5372.6
15°	5557.7	5499.3	5319.8	5219.4	5166.7
17.5°	5446.6	5361.9	5139.7	5023.6	4938.8
20°	5319.8	5213.7	4949.6	4817.7	4701.0
22.5°	5182.3	5060.6	4753.7	4574.2	4495.1
25°	5044.9	4875.4	4526.5	4309.9	4230.2
27.5°	4881.1	4701.0	4315.0	4066.4	3944.7
30°	4706.6	4505.2	4082.2	3812.8	3669.8
32.5°	4537.1	4293.6	3860.5	3543.0	3410.6
35°	4347.0	4077.1	3612.0	3278.7	3162.0
37.5°	4161.9	3870.6	3379.1	3013.9	2882.1
40°	3966.0	3649.0	3135.6	2760.4	2622.9
42.5°	3765.2	3426.9	2892.8	2501.1	2369.2
45°	3553.6	3199.1	2644.2	2268.3	2141.5
47.5°	3352.8	2977.5	2406.3	2030.4	1914.3
50°	3130.6	2755.3	2173.4	1808.3	1697.7
52.5°	2913.5	2516.8	1951.3	1602.4	1501.9
55°	2702.0	2289.6	1718.5	1401.5	1301.0
57.5°	2485.4	2062.3	1512.6	1216.4	1131.7
60°	2263.2	1840.2	1295.5	1026.1	941.4
62.5°	2046.7	1623.7	1110.3	856.7	814.7
65°	1824.5	1395.8	920.1	740.5	724.3
67.5°	1613.0	1184.4	740.5	650.3	634.5
70°	1390.8	978.5	613.2	560.5	539.2
72.5°	1179.3	787.7	512.8	470.7	460.1
75°	972.8	602.6	423.0	386.0	380.9
77.5°	767.0	428.1	333.3	311.9	301.2
80°	576.2	306.9	253.6	232.9	232.9
82.5°	401.7	206.4	174.5	163.8	163.8
85°	227.2	116.1	100.4	100.4	100.4
87.5°	84.7	42.1	42.1	37.1	37.1
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.7	98.7	140.6	160.2	165.2
102.5°	599.2	594.5	145.5	172.5	180.1
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.6	1144.2	431.6	185.1	194.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.4	1294.6	1252.8	189.8	197.4
115°	1418.0	1459.9	1521.7	379.8	202.4
117.5°	1563.5	1612.8	1654.9	1302.0	656.0
120°	1726.4	1763.2	1807.8	1837.3	1504.4
122.5°	1864.3	1903.8	1953.3	1967.9	1970.6
125°	2004.9	2037.1	2084.0	2101.2	2108.5
127.5°	2133.1	2167.7	2204.8	2229.5	2231.8
130°	2254.0	2293.6	2320.6	2347.7	2345.4
132.5°	2377.3	2409.5	2436.5	2458.7	2456.4
135°	2481.0	2520.5	2542.5	2567.4	2562.4
137.5°	2589.4	2619.0	2643.8	2668.5	2661.1
140°	2695.3	2715.3	2742.2	2764.5	2752.2
142.5°	2784.4	2801.7	2833.6	2853.2	2841.0
145°	2878.1	2875.5	2917.4	2934.7	2922.3
147.5°	2959.2	2951.9	2993.7	3006.1	2996.5
150°	3038.3	3021.0	3060.6	3075.2	3062.9
152.5°	3104.7	3085.1	3122.1	3136.9	3119.7
155°	3169.0	3146.9	3176.5	3191.2	3171.6
157.5°	3220.8	3201.2	3223.4	3240.7	3220.8
160°	3265.3	3250.4	3265.3	3279.9	3262.7
162.5°	3304.5	3289.8	3302.2	3319.4	3297.2
165°	3339.0	3324.4	3331.7	3349.0	3331.7
167.5°	3366.3	3351.3	3359.0	3376.3	3354.0
170°	3388.5	3373.7	3378.6	3395.9	3373.7
172.5°	3403.1	3388.5	3393.6	3410.8	3388.5
175°	3415.5	3398.2	3403.1	3420.5	3395.9
177.5°	3420.5	3403.1	3405.9	3423.1	3400.8
180°	3408.2	3408.2	3408.2	3408.2	3408.2

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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	12.48	13.35	13.41	14.29	15.50	8.44	9.31	9.37	10.25	11.46
	3H	14.17	14.95	15.10	15.89	17.12	9.64	10.41	10.57	11.36	12.59
	4H	14.78	15.52	15.73	16.47	17.71	10.09	10.82	11.04	11.77	13.01
	6H	15.21	15.88	16.17	16.84	18.09	10.41	11.09	11.37	12.04	13.30
	8H	15.34	15.98	16.31	16.95	18.20	10.50	11.15	11.47	12.12	13.37
	12H	15.40	16.01	16.38	16.98	18.26	10.55	11.16	11.52	12.13	13.40
4H	2H	12.51	13.24	13.46	14.19	15.43	9.05	9.78	10.00	10.73	11.97
	3H	14.34	14.95	15.31	15.93	17.19	10.40	11.01	11.37	11.99	13.25
	4H	15.04	15.60	16.01	16.57	17.85	10.95	11.51	11.93	12.48	13.76
	6H	15.56	16.04	16.55	17.04	18.32	11.37	11.85	12.36	12.85	14.13
	8H	15.74	16.19	16.73	17.18	18.47	11.50	11.95	12.49	12.94	14.23
	12H	15.84	16.24	16.85	17.25	18.55	11.57	11.97	12.58	12.98	14.28
8H	4H	15.01	15.46	16.00	16.45	17.74	11.24	11.68	12.22	12.68	13.97
	6H	15.58	15.95	16.60	16.99	18.28	11.76	12.13	12.77	13.16	14.45
	8H	15.80	16.13	16.82	17.15	18.46	11.95	12.28	12.97	13.30	14.60
	12H	15.95	16.23	16.97	17.25	18.60	12.07	12.36	13.10	13.37	14.73
12H	4H	14.97	15.37	15.97	16.38	17.67	11.24	11.65	12.25	12.66	13.95
	6H	15.56	15.88	16.58	16.91	18.21	11.81	12.13	12.83	13.15	14.46
	8H	15.78	16.07	16.81	17.09	18.44	12.02	12.31	13.05	13.32	14.68

END OF REPORT