

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: P909670

Luminaire Tested: DFN2DIP-SQ4F0-140D120US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909670
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-SQ4F0-140D120US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

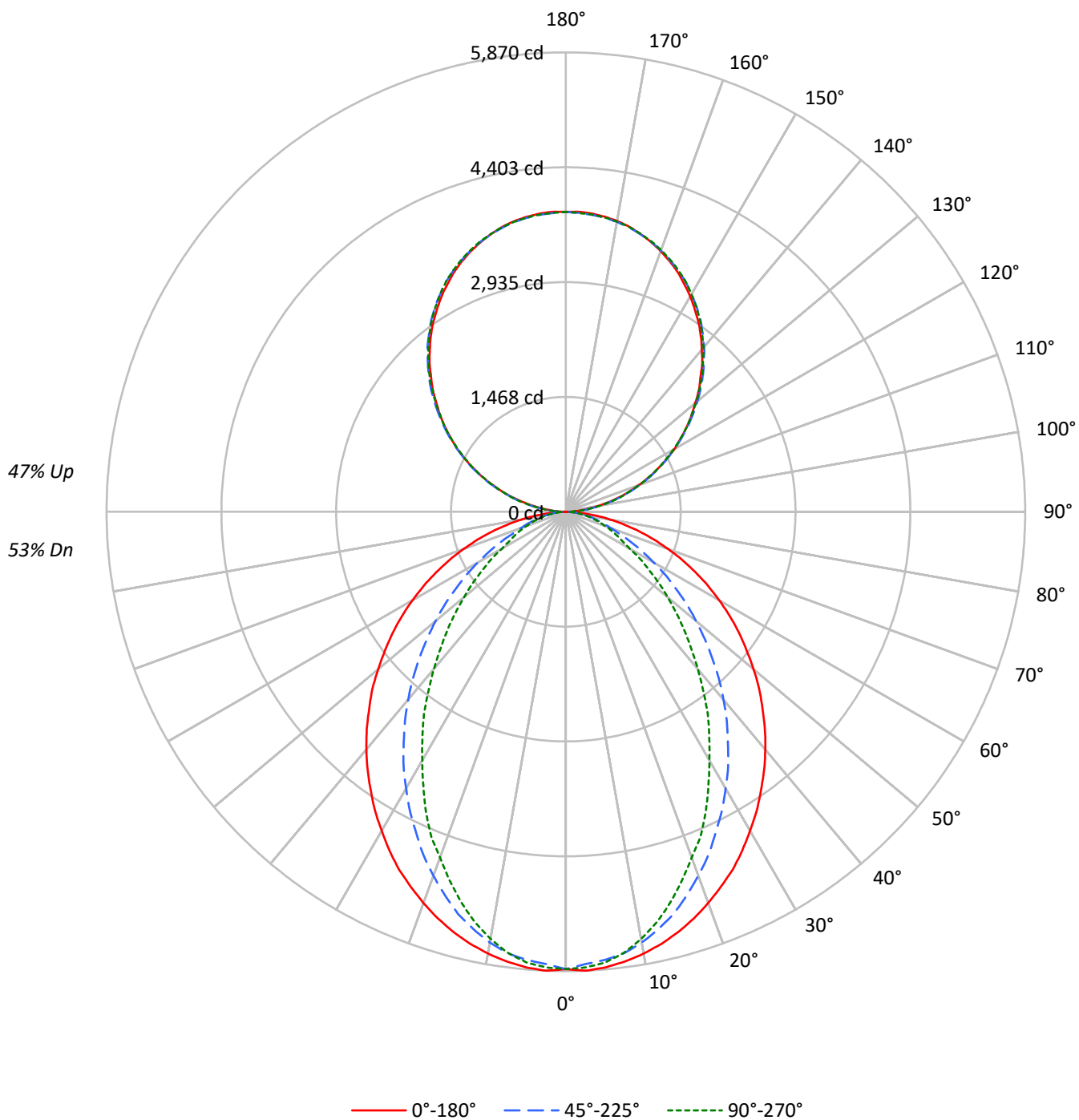
Lumens per Lamp: N/A
Luminaire Lumens: 22742.2 lumens
Efficiency: N/A
Efficacy: 97.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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
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	85	85	85	71	71	71	59	59	59
1	99	95	91	88	92	88	85	82	75	73	71	64	62	60	53	52	51
2	91	83	77	72	84	78	72	68	67	63	59	56	54	51	47	45	43
3	83	74	67	61	77	69	62	57	59	54	51	50	47	44	42	40	38
4	76	66	58	52	70	61	54	49	53	48	44	45	41	38	38	35	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	33	34	31	29
6	65	53	45	39	60	50	42	37	43	38	33	37	33	30	31	28	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23
8	56	44	36	31	52	41	34	29	36	30	27	31	27	24	27	23	21
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	25	21	19
10	49	37	30	25	45	35	28	24	31	25	22	27	22	19	23	20	17

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	2.4
10°-20°	1503.4	6.6
20°-30°	2110.7	9.3
30°-40°	2300.8	10.1
40°-50°	2114.7	9.3
50°-60°	1660.7	7.3
60°-70°	1081.0	4.8
70°-80°	556.5	2.4
80°-90°	152.9	0.7
90°-100°	237.2	1.0
100°-110°	753.5	3.3
110°-120°	1289.5	5.7
120°-130°	1696.0	7.5
130°-140°	1903.6	8.4
140°-150°	1866.7	8.2
150°-160°	1565.9	6.9
160°-170°	1038.5	4.6
170°-180°	363.0	1.6
0°-30°	4161.7	18.3
0°-40°	6462.5	28.4
0°-60°	10237.9	45.0
0°-90°	12028.3	52.9
90°-120°	2280.2	10.0
90°-150°	7746.5	34.1
90°-180°	10714.0	47.1
0°-180°	22742.2	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°	3	42	113	106	110	22
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	

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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°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5

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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	12.33	13.18	13.27	14.13	15.36	8.29	9.14	9.23	10.09	11.33
	3H	14.01	14.77	14.96	15.73	16.99	9.48	10.24	10.43	11.20	12.46
	4H	14.62	15.35	15.59	16.31	17.57	9.93	10.65	10.90	11.62	12.88
	6H	15.05	15.71	16.03	16.68	17.96	10.25	10.92	11.23	11.89	13.16
	8H	15.18	15.81	16.16	16.80	18.07	10.35	10.98	11.33	11.96	13.24
	12H	15.24	15.84	16.23	16.82	18.12	10.39	10.99	11.38	11.97	13.27
4H	2H	12.35	13.07	13.32	14.03	15.30	8.89	9.61	9.86	10.58	11.84
	3H	14.18	14.78	15.16	15.78	17.06	10.24	10.84	11.22	11.84	13.11
	4H	14.88	15.43	15.87	16.42	17.72	10.79	11.34	11.78	12.33	13.63
	6H	15.40	15.87	16.40	16.88	18.18	11.21	11.68	12.21	12.69	14.00
	8H	15.58	16.02	16.58	17.02	18.34	11.34	11.78	12.34	12.79	14.10
	12H	15.68	16.07	16.70	17.10	18.41	11.41	11.81	12.43	12.83	14.15
8H	4H	14.85	15.29	15.85	16.29	17.61	11.08	11.52	12.08	12.52	13.83
	6H	15.42	15.78	16.45	16.83	18.14	11.60	11.96	12.62	13.01	14.32
	8H	15.64	15.96	16.68	16.99	18.33	11.79	12.11	12.82	13.14	14.47
	12H	15.78	16.07	16.82	17.09	18.47	11.91	12.19	12.95	13.22	14.59
12H	4H	14.80	15.20	15.82	16.22	17.54	11.08	11.48	12.10	12.50	13.82
	6H	15.40	15.72	16.43	16.75	18.08	11.65	11.97	12.68	13.00	14.33
	8H	15.62	15.90	16.66	16.93	18.31	11.86	12.14	12.90	13.17	14.54