

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: P926025

Luminaire Tested: DFN2DIP-SQ4F0-140D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926025
REPORT IS A COMBINATION OF REPORTS P901647 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US950-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

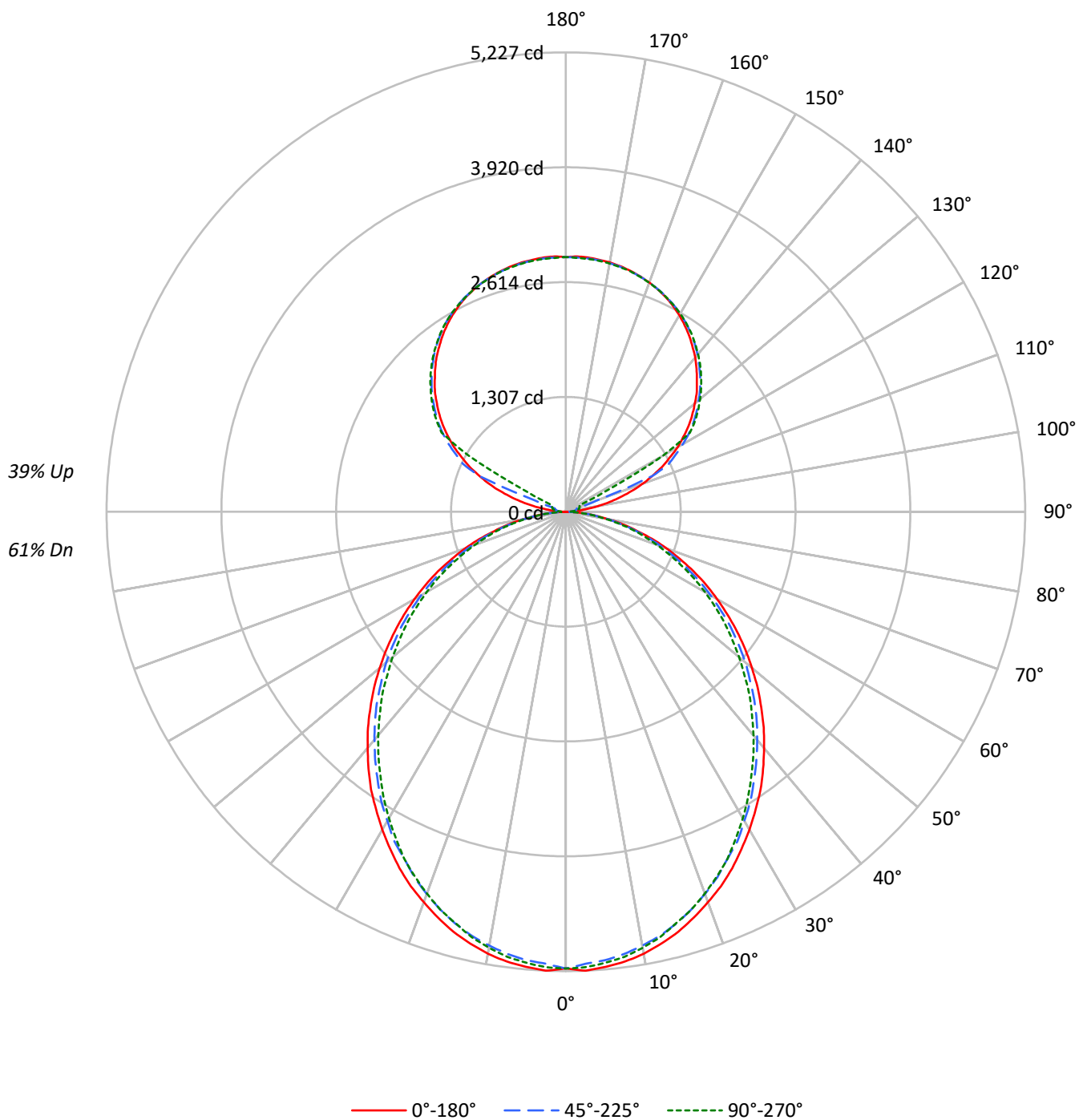
Lumens per Lamp: N/A
Luminaire Lumens: 21722.5 lumens
Efficiency: N/A
Efficacy: 103.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 210.5
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	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66
1	100	96	92	88	94	90	86	83	78	76	74	68	66	64	58	57	56
2	91	84	77	72	85	79	73	68	69	65	61	60	57	54	51	49	47
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	37	35
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30
6	65	52	44	38	60	49	42	36	44	38	33	38	33	30	33	30	27
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	31	27	24
8	56	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21
9	52	39	32	27	48	37	30	25	33	27	23	29	25	21	26	22	19
10	48	36	29	24	45	34	27	23	31	25	21	27	23	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3647	3647	3647
5°	3652	3596	3621
10°	3623	3549	3573
15°	3569	3491	3497
20°	3497	3411	3420
25°	3426	3314	3330
30°	3336	3225	3216
35°	3251	3119	3095
40°	3146	3012	2980
45°	3042	2905	2863
50°	2927	2793	2726
55°	2808	2663	2601
60°	2673	2508	2458
65°	2525	2349	2289
70°	2338	2154	2108
75°	2077	1922	1942
80°	1765	1625	1622
85°	1275	1112	1091

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3042 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	489.1	2.3
10°-20°	1376.2	6.3
20°-30°	2022.5	9.3
30°-40°	2349.0	10.8
40°-50°	2346.1	10.8
50°-60°	2045.7	9.4
60°-70°	1512.2	7.0
70°-80°	855.6	3.9
80°-90°	230.9	1.1
90°-100°	95.6	0.4
100°-110°	356.2	1.6
110°-120°	944.7	4.3
120°-130°	1566.8	7.2
130°-140°	1664.3	7.7
140°-150°	1546.8	7.1
150°-160°	1243.6	5.7
160°-170°	801.3	3.7
170°-180°	275.8	1.3
0°-30°	3887.9	17.9
0°-40°	6236.9	28.7
0°-60°	10628.8	48.9
0°-90°	13227.5	60.9
90°-120°	1396.4	6.4
90°-150°	6174.3	28.4
90°-180°	8495.0	39.1
0°-180°	21722.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5197	5197	5197	5197	5197	
5°	5197	5177	5122	5162	5152	493
15°	4947	4918	4852	4872	4848	1393
25°	4477	4438	4353	4362	4353	2060
35°	3863	3813	3733	3703	3678	2412
45°	3143	3108	3033	2979	2958	2426
55°	2379	2349	2289	2229	2204	2127
65°	1604	1574	1524	1479	1454	1586
75°	839	830	804	775	785	896
85°	205	200	195	180	175	228
90°	2	25	42	53	56	20
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5196.9	5196.9	5196.9	5196.9	5196.9
2.5°	5227.1	5202.2	5147.0	5196.9	5187.4
5°	5196.9	5177.3	5122.1	5161.9	5152.4
7.5°	5161.9	5132.2	5077.1	5117.4	5107.2
10°	5107.2	5072.3	5012.4	5052.2	5037.3
12.5°	5032.0	5002.3	4942.4	4967.3	4957.3
15°	4947.2	4917.5	4852.2	4872.5	4847.5
17.5°	4842.2	4812.5	4747.3	4772.2	4747.3
20°	4727.2	4697.5	4627.5	4642.4	4622.7
22.5°	4612.6	4567.6	4502.3	4502.3	4492.3
25°	4477.4	4437.6	4352.8	4362.4	4352.8
27.5°	4327.3	4292.4	4227.7	4212.9	4188.0
30°	4177.9	4137.6	4062.8	4048.0	4027.8
32.5°	4017.8	3988.1	3908.0	3877.8	3857.6
35°	3862.9	3813.1	3733.0	3702.9	3677.9
37.5°	3688.0	3642.9	3562.8	3527.9	3502.9
40°	3508.2	3468.0	3387.8	3343.4	3323.2
42.5°	3333.3	3293.0	3213.5	3163.1	3133.4
45°	3143.4	3108.5	3033.2	2978.6	2958.4
47.5°	2958.4	2923.4	2843.4	2788.3	2758.6
50°	2763.4	2738.5	2668.4	2598.4	2573.5
52.5°	2573.5	2538.5	2473.8	2418.7	2383.8
55°	2379.0	2348.7	2288.8	2228.9	2204.0
57.5°	2183.8	2158.9	2093.7	2033.8	2013.6
60°	1988.7	1969.2	1899.1	1844.0	1829.1
62.5°	1799.0	1763.9	1714.1	1664.3	1644.1
65°	1604.3	1574.1	1524.3	1479.2	1454.3
67.5°	1404.5	1379.0	1334.5	1299.4	1279.3
70°	1219.4	1199.3	1154.2	1119.2	1099.6
72.5°	1029.7	1009.4	984.5	949.6	934.7
75°	839.3	829.8	804.3	774.6	784.7
77.5°	669.6	649.5	639.4	624.6	609.7
80°	500.0	494.6	484.6	469.7	459.6
82.5°	339.8	339.8	335.0	314.9	314.9
85°	204.6	199.9	195.1	179.7	175.0
87.5°	90.2	80.0	70.0	55.1	49.8
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7

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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	12.73	13.70	13.59	14.58	15.68	12.28	13.25	13.14	14.13	15.24
	3H	14.40	15.27	15.27	16.16	17.29	13.91	14.78	14.78	15.67	16.80
	4H	15.00	15.82	15.88	16.71	17.86	14.50	15.32	15.39	16.22	17.36
	6H	15.41	16.16	16.30	17.06	18.22	14.90	15.66	15.80	16.56	17.72
	8H	15.51	16.24	16.42	17.16	18.31	15.01	15.73	15.92	16.65	17.81
	12H	15.57	16.26	16.48	17.17	18.35	15.06	15.75	15.97	16.66	17.84
4H	2H	13.20	14.02	14.09	14.92	16.06	12.85	13.67	13.74	14.56	15.71
	3H	15.08	15.77	15.98	16.70	17.85	14.68	15.36	15.58	16.29	17.45
	4H	15.80	16.43	16.72	17.35	18.54	15.38	16.01	16.29	16.93	18.11
	6H	16.33	16.87	17.26	17.82	19.00	15.90	16.44	16.83	17.38	18.57
	8H	16.48	16.99	17.41	17.93	19.13	16.05	16.55	16.98	17.49	18.69
	12H	16.57	17.02	17.51	17.98	19.18	16.12	16.57	17.07	17.53	18.73
8H	4H	16.01	16.52	16.94	17.46	18.65	15.63	16.14	16.56	17.08	18.28
	6H	16.65	17.07	17.61	18.05	19.25	16.27	16.69	17.22	17.67	18.87
	8H	16.88	17.25	17.84	18.22	19.43	16.48	16.85	17.45	17.82	19.04
	12H	17.02	17.34	17.98	18.31	19.57	16.60	16.93	17.57	17.89	19.16
12H	4H	16.00	16.46	16.95	17.41	18.62	15.63	16.09	16.58	17.05	18.25
	6H	16.68	17.05	17.65	18.02	19.24	16.31	16.68	17.28	17.65	18.87
	8H	16.93	17.26	17.90	18.22	19.49	16.55	16.88	17.52	17.84	19.11