

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: P926024

Luminaire Tested: DFN2DIP-SQ4F0-140D090US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926024
REPORT IS A COMBINATION OF REPORTS P900127 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US950-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

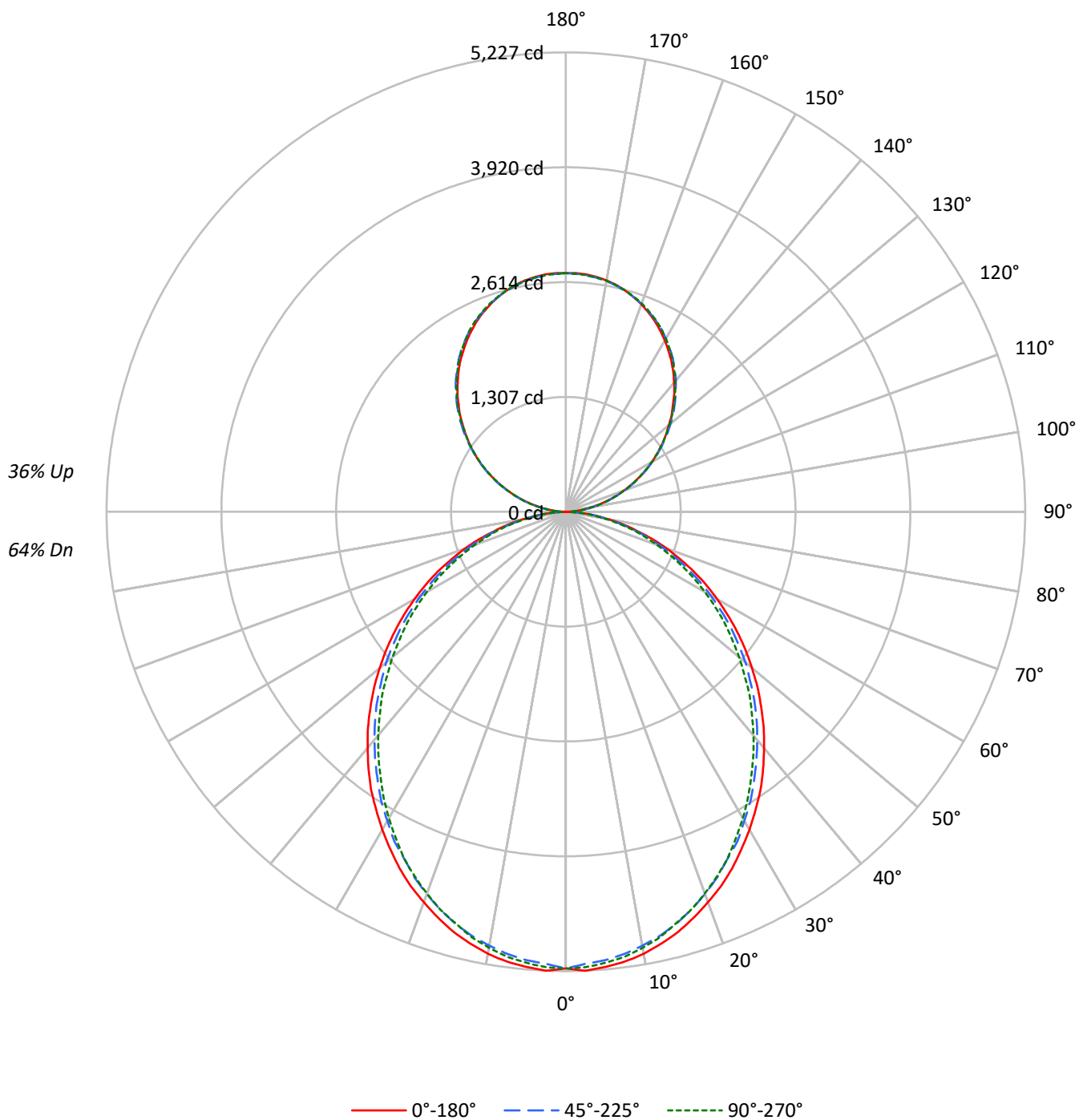
Lumens per Lamp: N/A
Luminaire Lumens: 20821.0 lumens
Efficiency: N/A
Efficacy: 98.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

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	104	104	104	104	91	91	91	79	79	79	69	69	69
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	61	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49
3	84	74	67	61	78	70	63	58	62	56	52	54	50	47	47	44	42
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36
5	70	59	50	44	66	55	48	42	49	43	38	43	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	22	28	23	20	25	21	18

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	6.6
20°-30°	2022.5	9.7
30°-40°	2349.0	11.3
40°-50°	2346.1	11.3
50°-60°	2045.7	9.8
60°-70°	1512.2	7.3
70°-80°	855.6	4.1
80°-90°	233.5	1.1
90°-100°	168.0	0.8
100°-110°	533.9	2.6
110°-120°	913.7	4.4
120°-130°	1201.6	5.8
130°-140°	1348.7	6.5
140°-150°	1322.6	6.4
150°-160°	1109.5	5.3
160°-170°	735.8	3.5
170°-180°	257.2	1.2
0°-30°	3887.9	18.7
0°-40°	6236.9	30.0
0°-60°	10628.8	51.0
0°-90°	13230.1	63.5
90°-120°	1615.6	7.8
90°-150°	5488.5	26.4
90°-180°	7591.0	36.5
0°-180°	20821.0	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	30	80	75	78	20
95°	120	142	146	146	142	133
105°	493	499	504	508	508	520
115°	917	930	926	924	917	907
125°	1334	1354	1348	1340	1338	1192
135°	1725	1750	1755	1753	1746	1333
145°	2094	2110	2124	2126	2117	1308
155°	2394	2401	2408	2420	2413	1102
165°	2605	2602	2602	2619	2607	735
175°	2710	2704	2699	2716	2702	258
180°	2716	2716	2716	2716	2716	

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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°	2.5	29.5	80.2	75.3	77.8
92.5°	50.8	68.8	71.3	73.6	73.6
95°	119.5	142.4	146.5	146.5	142.4
97.5°	198.9	220.2	229.2	229.2	229.2
100°	290.6	309.5	316.0	316.0	313.6
102.5°	387.2	401.2	410.1	412.6	410.1
105°	492.8	499.3	504.3	508.4	508.4
107.5°	597.6	607.4	607.4	609.0	597.6
110°	699.1	712.3	712.3	712.3	705.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	808.8	822.7	820.2	813.8	808.8
115°	916.9	930.0	925.9	923.5	916.9
117.5°	1024.1	1042.1	1030.7	1024.1	1017.5
120°	1132.2	1150.1	1132.2	1132.2	1124.8
122.5°	1230.4	1253.4	1241.9	1235.3	1230.4
125°	1333.6	1354.0	1347.5	1340.1	1337.7
127.5°	1434.2	1459.6	1450.7	1440.8	1434.2
130°	1528.4	1557.9	1553.8	1548.8	1539.9
132.5°	1634.0	1656.9	1658.5	1647.1	1640.6
135°	1724.8	1750.2	1755.2	1752.7	1746.2
137.5°	1826.3	1846.8	1851.0	1849.3	1839.5
140°	1915.6	1936.0	1947.5	1947.5	1938.5
142.5°	2007.3	2027.7	2034.3	2036.8	2027.7
145°	2094.1	2110.4	2123.5	2126.0	2117.0
147.5°	2171.9	2192.3	2202.1	2206.2	2197.3
150°	2252.1	2266.0	2275.0	2282.3	2275.0
152.5°	2323.3	2337.2	2348.7	2357.7	2348.7
155°	2394.5	2401.0	2408.5	2419.9	2412.6
157.5°	2455.9	2460.8	2464.9	2481.3	2469.8
160°	2510.7	2515.7	2518.2	2532.0	2522.2
162.5°	2561.5	2561.5	2564.0	2579.5	2568.1
165°	2604.9	2602.4	2602.4	2618.8	2607.4
167.5°	2644.2	2636.9	2636.9	2653.2	2641.7
170°	2673.7	2667.1	2664.7	2681.0	2667.1
172.5°	2694.1	2687.6	2685.1	2701.5	2687.6
175°	2710.5	2703.9	2699.1	2715.5	2701.5
177.5°	2719.5	2713.0	2708.0	2722.0	2708.0
180°	2715.5	2715.5	2715.5	2715.5	2715.5

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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	12.94	13.94	13.77	14.79	15.86	12.50	13.50	13.33	14.35	15.41
	3H	14.62	15.51	15.46	16.38	17.47	14.13	15.02	14.97	15.89	16.98
	4H	15.21	16.06	16.07	16.93	18.03	14.72	15.57	15.58	16.44	17.54
	6H	15.62	16.41	16.50	17.28	18.40	15.12	15.90	16.00	16.78	17.90
	8H	15.73	16.48	16.62	17.37	18.49	15.23	15.98	16.11	16.87	17.99
	12H	15.79	16.50	16.68	17.39	18.53	15.28	15.99	16.17	16.88	18.02
4H	2H	13.42	14.27	14.29	15.14	16.24	13.07	13.91	13.93	14.78	15.88
	3H	15.30	16.01	16.18	16.91	18.03	14.90	15.60	15.77	16.50	17.62
	4H	16.03	16.67	16.92	17.57	18.71	15.60	16.25	16.49	17.15	18.29
	6H	16.55	17.11	17.46	18.03	19.18	16.12	16.68	17.02	17.60	18.75
	8H	16.71	17.23	17.61	18.15	19.31	16.27	16.79	17.18	17.71	18.87
	12H	16.79	17.26	17.72	18.20	19.36	16.34	16.81	17.27	17.75	18.91
8H	4H	16.23	16.75	17.14	17.67	18.83	15.86	16.38	16.76	17.30	18.45
	6H	16.88	17.31	17.81	18.27	19.42	16.49	16.92	17.43	17.88	19.04
	8H	17.10	17.48	18.04	18.43	19.61	16.71	17.09	17.65	18.04	19.22
	12H	17.24	17.58	18.19	18.52	19.75	16.83	17.17	17.78	18.11	19.34
12H	4H	16.23	16.70	17.15	17.63	18.80	15.86	16.33	16.78	17.26	18.43
	6H	16.91	17.29	17.85	18.24	19.42	16.54	16.92	17.48	17.87	19.04
	8H	17.16	17.50	18.11	18.44	19.66	16.78	17.11	17.73	18.06	19.28