

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: P912380

Luminaire Tested: DFN2DIP-SQ4F0-140D080US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912380
REPORT IS A COMBINATION OF REPORTS P900109 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D080US850-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

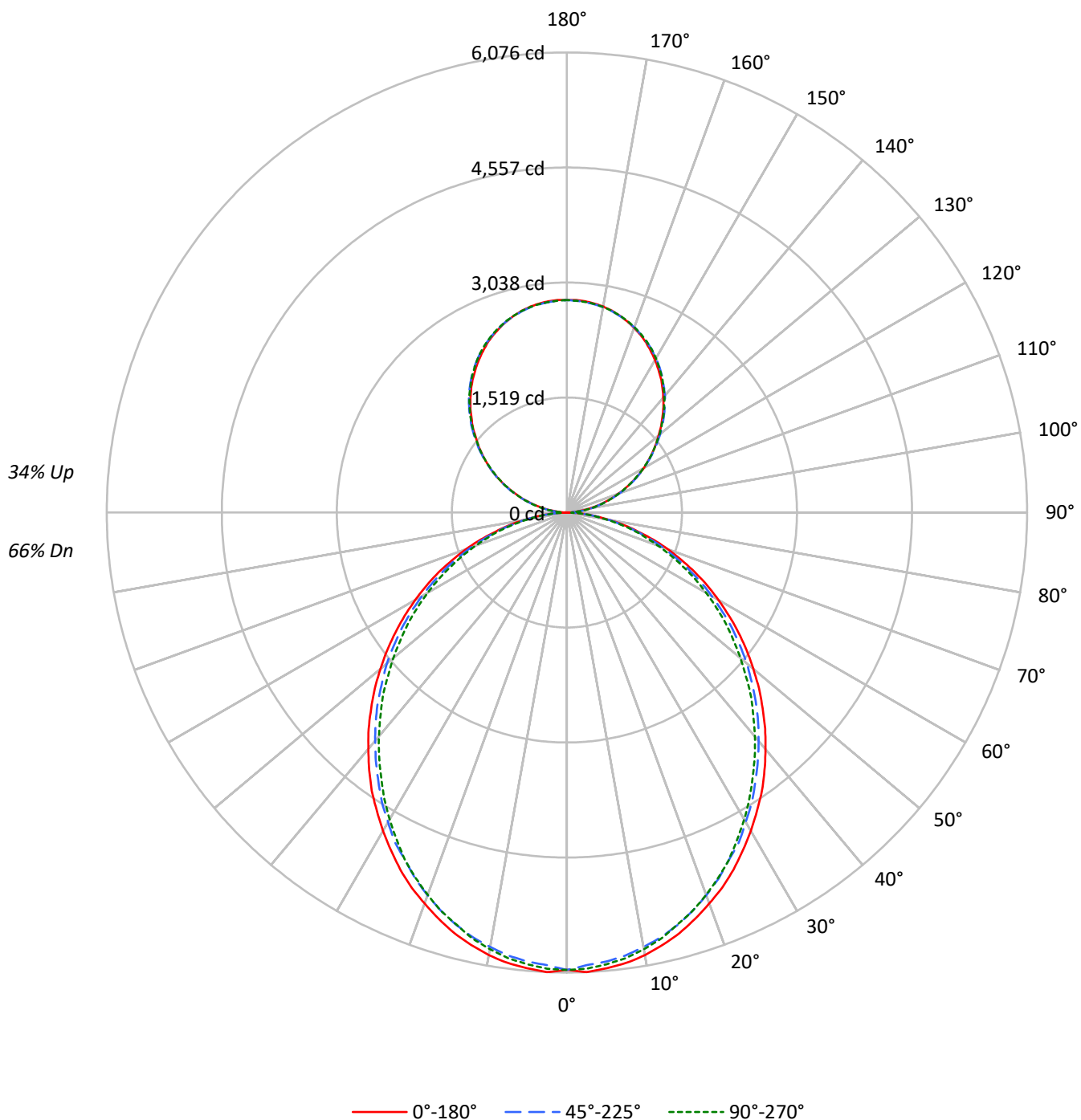
Lumens per Lamp: N/A
Luminaire Lumens: 23222.5 lumens
Efficiency: N/A
Efficacy: 114.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 203.3
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	101	97	93	89	95	91	88	85	81	78	76	72	70	68	63	61	60
2	92	85	78	73	87	80	74	70	71	67	63	63	60	57	55	53	51
3	84	75	67	61	79	70	64	58	63	57	53	56	51	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	25
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4239	4239	4239
5°	4246	4181	4209
10°	4211	4125	4153
15°	4149	4058	4066
20°	4066	3965	3976
25°	3982	3853	3871
30°	3878	3748	3739
35°	3779	3626	3598
40°	3657	3501	3464
45°	3536	3377	3328
50°	3403	3246	3169
55°	3264	3095	3024
60°	3107	2916	2858
65°	2936	2731	2661
70°	2717	2504	2450
75°	2415	2234	2258
80°	2051	1890	1886
85°	1483	1293	1268

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3536 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	568.6	2.4
10°-20°	1599.8	6.9
20°-30°	2351.1	10.1
30°-40°	2730.7	11.8
40°-50°	2727.3	11.7
50°-60°	2378.1	10.2
60°-70°	1757.9	7.6
70°-80°	994.6	4.3
80°-90°	270.5	1.2
90°-100°	173.6	0.7
100°-110°	551.7	2.4
110°-120°	944.1	4.1
120°-130°	1241.6	5.3
130°-140°	1393.7	6.0
140°-150°	1366.6	5.9
150°-160°	1146.4	4.9
160°-170°	760.3	3.3
170°-180°	265.7	1.1
0°-30°	4519.6	19.5
0°-40°	7250.2	31.2
0°-60°	12355.7	53.2
0°-90°	15378.7	66.2
90°-120°	1669.4	7.2
90°-150°	5671.3	24.4
90°-180°	7844.0	33.8
0°-180°	23222.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6041	6041	6041	6041	6041	
5°	6041	6018	5954	6001	5990	573
15°	5751	5716	5641	5664	5635	1620
25°	5205	5159	5060	5071	5060	2395
35°	4491	4433	4340	4304	4275	2804
45°	3654	3614	3526	3462	3439	2820
55°	2766	2730	2661	2591	2562	2472
65°	1865	1830	1772	1720	1691	1844
75°	976	965	935	900	912	1042
85°	238	232	227	209	203	265
90°	3	30	83	78	80	22
95°	124	147	151	151	147	137
105°	509	516	521	525	525	537
115°	947	961	957	954	947	937
125°	1378	1399	1392	1385	1382	1231
135°	1782	1809	1814	1811	1804	1378
145°	2164	2181	2194	2197	2188	1352
155°	2474	2481	2489	2500	2493	1139
165°	2692	2689	2689	2706	2694	759
175°	2801	2794	2789	2806	2792	266
180°	2806	2806	2806	2806	2806	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6041.3	6041.3	6041.3	6041.3	6041.3
2.5°	6076.3	6047.4	5983.3	6041.3	6030.2
5°	6041.3	6018.4	5954.3	6000.6	5989.5
7.5°	6000.6	5966.1	5902.0	5948.8	5937.0
10°	5937.0	5896.4	5826.8	5873.0	5855.7
12.5°	5849.5	5815.0	5745.4	5774.3	5762.7
15°	5750.9	5716.5	5640.6	5664.1	5635.1
17.5°	5629.0	5594.5	5518.6	5547.6	5518.6
20°	5495.2	5460.7	5379.3	5396.6	5373.8
22.5°	5362.0	5309.7	5233.8	5233.8	5222.2
25°	5204.9	5158.6	5060.0	5071.1	5060.0
27.5°	5030.4	4989.8	4914.6	4897.3	4868.4
30°	4856.6	4809.8	4722.9	4705.7	4682.2
32.5°	4670.6	4636.1	4542.9	4507.9	4484.4
35°	4490.6	4432.7	4339.5	4304.5	4275.4
37.5°	4287.2	4234.8	4141.7	4101.1	4072.0
40°	4078.2	4031.4	3938.3	3886.6	3863.1
42.5°	3874.8	3828.0	3735.6	3677.0	3642.5
45°	3654.2	3613.6	3526.1	3462.5	3439.1
47.5°	3439.1	3398.4	3305.4	3241.3	3206.8
50°	3212.3	3183.4	3102.0	3020.6	2991.6
52.5°	2991.6	2950.9	2875.7	2811.6	2771.1
55°	2765.5	2730.4	2660.7	2591.1	2562.1
57.5°	2538.6	2509.7	2433.9	2364.3	2340.8
60°	2311.8	2289.1	2207.7	2143.6	2126.3
62.5°	2091.2	2050.5	1992.5	1934.7	1911.3
65°	1865.0	1829.8	1772.0	1719.5	1690.6
67.5°	1632.7	1603.1	1551.3	1510.6	1487.2
70°	1417.5	1394.1	1341.8	1301.1	1278.2
72.5°	1196.9	1173.4	1144.5	1103.9	1086.6
75°	975.7	964.6	935.0	900.5	912.2
77.5°	778.4	755.0	743.3	726.1	708.8
80°	581.2	575.0	563.4	546.1	534.3
82.5°	395.0	395.0	389.5	366.1	366.1
85°	237.9	232.3	226.8	208.9	203.4
87.5°	104.8	93.0	81.4	64.1	57.9
90°	2.6	30.5	83.0	77.9	80.4
92.5°	52.5	71.1	73.6	76.1	76.1
95°	123.5	147.2	151.4	151.4	147.2
97.5°	205.6	227.6	236.9	236.9	236.9
100°	300.3	319.7	326.5	326.5	323.9
102.5°	400.1	414.5	423.7	426.3	423.7
105°	509.3	516.0	521.1	525.3	525.3
107.5°	617.5	627.7	627.7	629.4	617.5
110°	722.4	735.9	735.9	735.9	729.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	835.7	850.2	847.6	840.8	835.7
115°	947.4	960.9	956.7	954.2	947.4
117.5°	1058.2	1076.8	1065.0	1058.2	1051.4
120°	1169.9	1188.5	1169.9	1169.9	1162.2
122.5°	1271.4	1295.1	1283.2	1276.5	1271.4
125°	1377.9	1399.1	1392.3	1384.7	1382.3
127.5°	1482.1	1508.2	1498.9	1488.8	1482.1
130°	1579.3	1609.7	1605.5	1600.5	1591.2
132.5°	1688.5	1712.1	1713.8	1702.0	1695.2
135°	1782.3	1808.6	1813.7	1811.1	1804.3
137.5°	1887.2	1908.4	1912.6	1910.9	1900.7
140°	1979.5	2000.5	2012.4	2012.4	2003.1
142.5°	2074.2	2095.3	2102.1	2104.7	2095.3
145°	2163.9	2180.7	2194.3	2196.8	2187.5
147.5°	2244.2	2265.4	2275.4	2279.8	2270.5
150°	2327.1	2341.4	2350.7	2358.4	2350.7
152.5°	2400.7	2415.1	2426.9	2436.3	2426.9
155°	2474.3	2481.1	2488.7	2500.5	2492.9
157.5°	2537.7	2542.8	2547.0	2563.9	2552.1
160°	2594.4	2599.5	2602.0	2616.4	2606.3
162.5°	2646.9	2646.9	2649.4	2665.5	2653.6
165°	2691.7	2689.1	2689.1	2706.1	2694.2
167.5°	2732.2	2724.7	2724.7	2741.6	2729.7
170°	2762.7	2756.0	2753.4	2770.4	2756.0
172.5°	2783.9	2777.2	2774.6	2791.5	2777.2
175°	2800.8	2794.0	2788.9	2805.9	2791.5
177.5°	2810.1	2803.3	2798.2	2812.6	2798.2
180°	2805.9	2805.9	2805.9	2805.9	2805.9

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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	13.68	14.71	14.48	15.53	16.55	13.23	14.26	14.04	15.09	16.11
	3H	15.36	16.28	16.17	17.12	18.16	14.86	15.79	15.68	16.63	17.67
	4H	15.95	16.83	16.79	17.67	18.73	15.46	16.33	16.29	17.18	18.23
	6H	16.37	17.17	17.21	18.02	19.09	15.87	16.67	16.71	17.52	18.59
	8H	16.48	17.24	17.33	18.11	19.19	15.97	16.74	16.83	17.61	18.68
	12H	16.53	17.26	17.39	18.13	19.23	16.02	16.75	16.88	17.62	18.72
4H	2H	14.16	15.03	15.00	15.88	16.93	13.81	14.68	14.64	15.52	16.58
	3H	16.05	16.77	16.90	17.65	18.73	15.64	16.37	16.49	17.24	18.32
	4H	16.77	17.43	17.63	18.31	19.41	16.35	17.01	17.21	17.88	18.99
	6H	17.30	17.87	18.18	18.77	19.88	16.87	17.44	17.75	18.34	19.44
	8H	17.45	17.99	18.34	18.88	20.00	17.02	17.55	17.90	18.45	19.56
	12H	17.54	18.02	18.44	18.93	20.06	17.09	17.57	17.99	18.48	19.61
8H	4H	16.98	17.52	17.86	18.41	19.53	16.60	17.14	17.49	18.03	19.15
	6H	17.62	18.07	18.53	19.00	20.12	17.24	17.68	18.15	18.62	19.74
	8H	17.85	18.24	18.77	19.17	20.30	17.46	17.85	18.38	18.78	19.91
	12H	17.99	18.34	18.91	19.26	20.44	17.58	17.93	18.50	18.85	20.03
12H	4H	16.97	17.46	17.88	18.37	19.49	16.61	17.09	17.51	18.00	19.13
	6H	17.65	18.05	18.57	18.98	20.11	17.28	17.68	18.20	18.61	19.74
	8H	17.91	18.26	18.83	19.18	20.36	17.53	17.88	18.45	18.80	19.98