

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: P912382

Luminaire Tested: DFN2DIP-SQ4F0-140D080US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912382
REPORT IS A COMBINATION OF REPORTS P900110 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D080US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

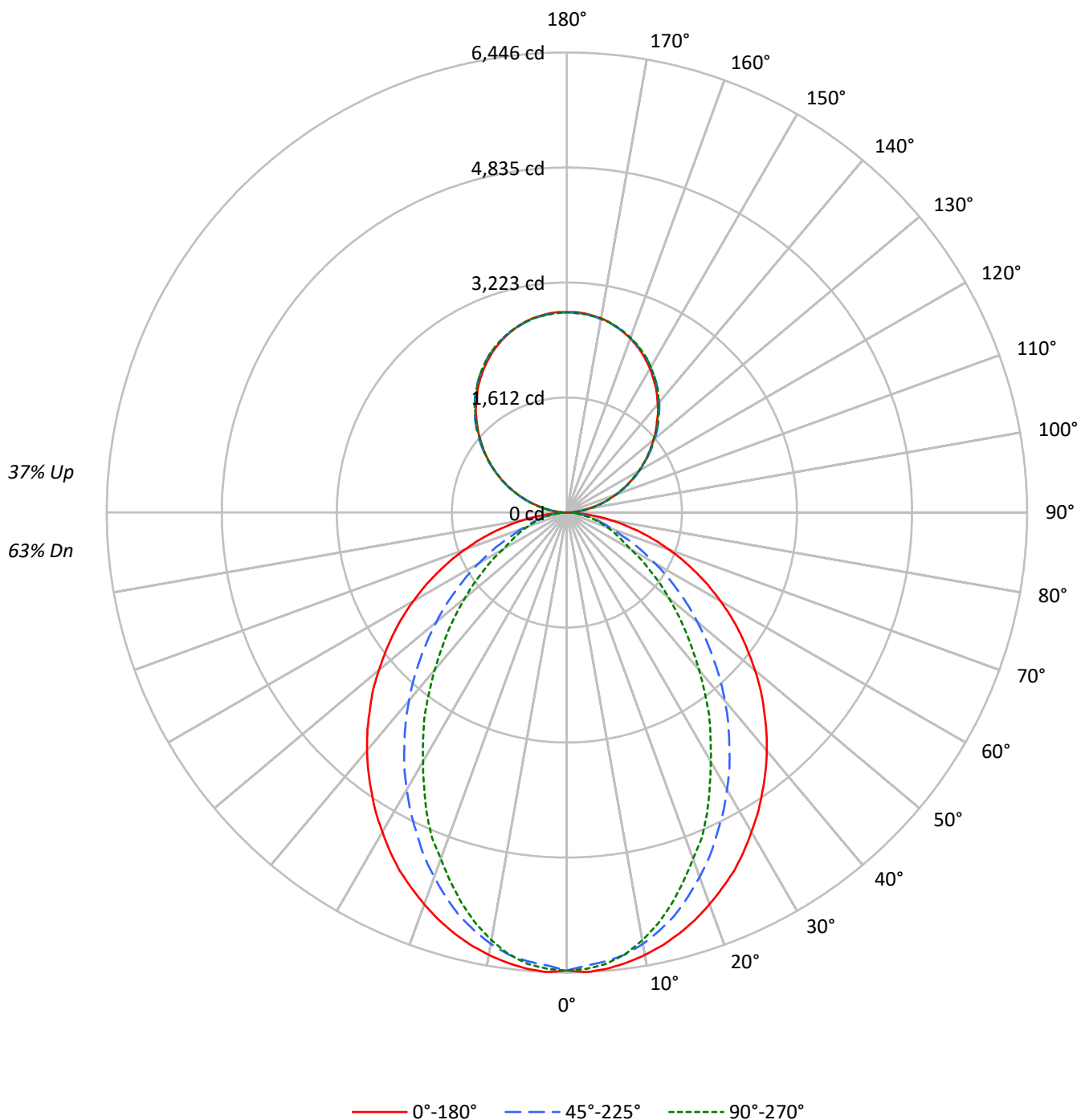
Lumens per Lamp: N/A
Luminaire Lumens: 21048.8 lumens
Efficiency: N/A
Efficacy: 103.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

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
RCR																	
0	110	110	110	110	103	103	103	103	90	90	90		79	79	79		68
1	101	97	93	90	95	91	88	85	80	78	76		70	68	67		61
2	93	85	80	75	87	80	75	71	71	67	64		62	59	57		54
3	85	76	69	63	79	71	65	60	63	58	54		56	52	49		49
4	78	67	60	54	73	64	57	51	57	51	47		50	46	42		44
5	72	61	53	47	67	57	50	45	51	45	41		45	41	37		40
6	67	55	47	41	62	52	44	39	46	40	36		41	36	33		36
7	62	50	42	36	58	47	40	35	42	36	32		38	33	29		33
8	57	45	38	32	54	43	36	31	39	33	29		35	30	26		31
9	54	42	34	29	50	40	33	28	36	30	26		32	27	24		29
10	50	38	31	26	47	36	30	25	33	27	24		30	25	22		27

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4503	4503	4503
5°	4510	4432	4461
10°	4465	4346	4317
15°	4403	4203	4094
20°	4322	4006	3819
25°	4239	3785	3554
30°	4127	3558	3218
35°	4017	3314	2922
40°	3906	3061	2583
45°	3776	2781	2276
50°	3642	2498	1975
55°	3502	2195	1686
60°	3340	1879	1389
65°	3154	1557	1252
70°	2928	1257	1135
75°	2644	1110	1035
80°	2234	934	903
85°	1555	628	687

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3776 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	601.4	2.9
10°-20°	1651.0	7.8
20°-30°	2317.9	11.0
30°-40°	2526.6	12.0
40°-50°	2322.3	11.0
50°-60°	1823.8	8.7
60°-70°	1187.1	5.6
70°-80°	611.1	2.9
80°-90°	164.0	0.8
90°-100°	173.6	0.8
100°-110°	551.7	2.6
110°-120°	944.1	4.5
120°-130°	1241.6	5.9
130°-140°	1393.7	6.6
140°-150°	1366.6	6.5
150°-160°	1146.4	5.4
160°-170°	760.3	3.6
170°-180°	265.7	1.3
0°-30°	4570.2	21.7
0°-40°	7096.9	33.7
0°-60°	11242.9	53.4
0°-90°	13205.1	62.7
90°-120°	1669.4	7.9
90°-150°	5671.3	26.9
90°-180°	7844.0	37.3
0°-180°	21048.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6417	6417	6417	6417	6417	
5°	6417	6388	6312	6365	6347	608
15°	6103	6039	5842	5732	5674	1720
25°	5540	5354	4971	4733	4646	2548
35°	4774	4477	3967	3601	3472	2988
45°	3902	3513	2904	2491	2352	3014
55°	2967	2514	1887	1539	1429	2651
65°	2004	1533	1010	813	795	1986
75°	1068	662	465	424	418	1130
85°	250	128	110	110	110	286
90°	3	30	83	78	80	21
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°	6416.9	6416.9	6416.9	6416.9	6416.9
2.5°	6445.8	6416.9	6352.8	6411.4	6399.6
5°	6416.9	6388.0	6312.1	6364.6	6347.3
7.5°	6364.6	6330.0	6248.7	6271.5	6242.6
10°	6294.9	6254.2	6138.4	6120.5	6086.0
12.5°	6208.0	6155.6	5998.5	5964.0	5900.0
15°	6103.3	6039.2	5842.0	5731.8	5673.9
17.5°	5981.3	5888.2	5644.3	5516.7	5423.7
20°	5842.0	5725.5	5435.4	5290.6	5162.5
22.5°	5691.1	5557.4	5220.4	5023.2	4936.4
25°	5540.1	5354.0	4970.9	4733.0	4645.5
27.5°	5360.2	5162.5	4738.5	4465.6	4332.0
30°	5168.6	4947.5	4482.9	4187.1	4030.0
32.5°	4982.5	4715.1	4239.5	3890.8	3745.4
35°	4773.7	4477.4	3966.6	3600.6	3472.4
37.5°	4570.4	4250.6	3710.8	3309.8	3165.0
40°	4355.4	4007.3	3443.4	3031.3	2880.4
42.5°	4134.8	3763.3	3176.7	2746.7	2601.8
45°	3902.5	3513.1	2903.8	2490.9	2351.7
47.5°	3681.9	3269.8	2642.5	2229.8	2102.2
50°	3437.9	3025.8	2386.8	1985.8	1864.3
52.5°	3199.5	2763.8	2142.8	1759.7	1649.3
55°	2967.2	2514.3	1887.2	1539.1	1428.7
57.5°	2729.4	2264.8	1661.1	1335.8	1242.7
60°	2485.4	2020.8	1422.6	1126.9	1033.8
62.5°	2247.6	1783.1	1219.3	940.8	894.6
65°	2003.6	1532.9	1010.4	813.2	795.4
67.5°	1771.3	1300.6	813.2	714.1	696.8
70°	1527.3	1074.5	673.4	615.5	592.1
72.5°	1295.1	865.0	563.2	516.9	505.3
75°	1068.3	661.7	464.6	423.9	418.3
77.5°	842.3	470.1	366.0	342.6	330.8
80°	632.8	337.0	278.5	255.7	255.7
82.5°	441.2	226.7	191.6	179.9	179.9
85°	249.5	127.5	110.2	110.2	110.2
87.5°	93.0	46.2	46.2	40.7	40.7
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	13.50	14.45	14.35	15.31	16.39	9.46	10.41	10.31	11.27	12.35
	3H	15.19	16.04	16.05	16.91	18.02	10.66	11.50	11.52	12.38	13.48
	4H	15.81	16.61	16.68	17.48	18.60	11.11	11.91	11.99	12.79	13.91
	6H	16.24	16.97	17.13	17.86	18.99	11.44	12.18	12.33	13.06	14.19
	8H	16.37	17.07	17.27	17.97	19.10	11.54	12.24	12.43	13.14	14.27
	12H	16.44	17.10	17.34	18.00	19.16	11.58	12.25	12.48	13.15	14.30
4H	2H	13.53	14.33	14.41	15.21	16.33	10.07	10.87	10.95	11.75	12.87
	3H	15.38	16.04	16.27	16.95	18.08	11.43	12.10	12.32	13.01	14.14
	4H	16.08	16.68	16.98	17.59	18.75	11.99	12.59	12.89	13.50	14.66
	6H	16.60	17.12	17.52	18.05	19.21	12.41	12.93	13.33	13.86	15.03
	8H	16.78	17.27	17.70	18.19	19.37	12.54	13.03	13.46	13.96	15.13
	12H	16.88	17.32	17.82	18.27	19.44	12.62	13.05	13.55	14.00	15.18
8H	4H	16.05	16.54	16.97	17.46	18.64	12.28	12.76	13.20	13.69	14.86
	6H	16.63	17.03	17.57	18.00	19.17	12.80	13.20	13.75	14.17	15.34
	8H	16.85	17.20	17.80	18.16	19.35	12.99	13.35	13.95	14.31	15.50
	12H	16.99	17.31	17.95	18.26	19.50	13.12	13.43	14.08	14.38	15.62
12H	4H	16.01	16.45	16.95	17.39	18.57	12.29	12.73	13.23	13.67	14.85
	6H	16.60	16.96	17.56	17.92	19.11	12.85	13.21	13.81	14.17	15.36
	8H	16.83	17.14	17.79	18.10	19.34	13.07	13.38	14.03	14.33	15.57